# *Towards a Philosophy of Telecommunications Convergence*

COMMUNICATIONS IN THE 21ST CENTURY
The Mobile Information Society

Conference organized by

**T-Mobile Hungary**

**and**

**The Hungarian Academy of Sciences**

**Conference co-ordinator: Kristóf Nyíri**

**Papers – draft version**

**Budapest 2007**


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**Ubiquitous Communication: A New Age of Enlightenment?**

"If it is now asked, 'Do we presently live in an enlightened age?' the answer is, 'No, but we do live in an age of enlightenment.'" (Kant, I.)

In general, we can say The Enlightenment was a movement in European thought, between the XV and XVIII centuries, the Renaissance and the Romantic periods, which emphasized the centrality of skepticism about received ideas, independent critical thought, and the invention of new systems of knowledge. The period encompassed an ethical value of turning away from the darkness and turning toward the light – it means The Enlightenment. But what is the core of this turning toward the light? We can explore Kant's concept: "Enlightenment is man's emergence from his self-imposed immaturity. Immaturity is the inability to use one's understanding without guidance from another. This immaturity is self-imposed when its cause lies not in lack of understanding, but in lack of resolve and courage to use it without guidance from another. Sapere Aude! [dare to know] "Have courage to use your own understanding!"--that is the motto of Enlightenment. What is required for this? "Nothing is required for this enlightenment, however, except freedom; and the freedom in question is the least harmful of all, namely, the freedom to use reason publicly in all matters." (Kant, Immanuel, *An Answer to the Question: What is Enlightenment?* (1784)) It is unquestionable that this concept of Enlightenment is only one of the many concepts (e.g. the Kantian concept of Enlightenment was already criticized by Kant's contemporary Hamann from a skeptical – Humeian – point of view). However, as I can see it contains some necessary elements which are inseparable from all possible concepts of Enlightenment. First of all, a larger realm of personal freedom is required. Secondly, the possibility of the public and private use of reason is also required. Thirdly, courage and the possibility to use one's own understanding are required. If one should deny even one of these requirements the possibility of Enlightenment is denied. In my paper I discuss these questions from the ubiquitous communication point of view. I do not intend to give a historical concept of Enlightenment, but a modern one fitting to the necessary criterion of traditional concept of Enlightenment. So I understand The Enlightenment is rather an ongoing process than a finished period.

In the first question, I emphasize that the freedom is inseparable from responsibility. If The Enlightenment is a new share of freedom it means a new share of responsibility. I bring my attention into focus on boundaries of freedom and responsibility. We can see that responsibility emerges not only in the case of real and free acts but also in the case of their possibility. In other words, the unrealized but possible actions possess responsibility. In consequence, if there is any change in the realm of possibilities of our actions it means necessary change in our freedom and responsibility. So if we can characterize the changes of the space of actions we can characterize the changes of freedom and the concept of Enlightenment in the same way.

In the second question, I underline the necessary relationship between public-private use of reason and the criterions of communication. The public space of reason is an area of communication. There is no change to the public sphere without a change to the sphere of communication and its practices. Since The Enlightenment means a new structure of public-private sphere it requires a new structure for the space of communication. I think the most relevant and exciting question is whether it is true vice versa? Do the new structure of the space of communication and new possibilities in this area produce a new age of Enlightenment? My answer is yes – the ubiquitous communication means a new age of Enlightenment. The main reason of my answer is the sense of responsibility. More possibilities in the public-communication space result in more freedom and responsibility and

the sense of the extended responsibility inspires new and more actions. In this meeting-point we can find three spheres interacting with each other: a) sphere of communicative possibilities b) sphere of actions c) sphere of responsibility. The third is a bridge between a) and b), it especially provides a way from b) to a) by power of its motivation. Certainly, there are more possibilities of motivation so we can call this a moral argument for a kind of social-communicative action.

In the third question, I emphasize that the fruits of technology assist an evolution to a more enlightened society and personality. Moreover it is a basic and very relevant question. In the age of telecommunications convergence the distances of space-time get shorter and shorter, and the communication itself converges closer and closer simultaneously. It seems from the perspective of current science that we have reached the extreme limits. The speed of the transfer of information cannot be much faster; we cannot eliminate the velocity of flight. The compression-decompression of data and signals needs time; and the time needed can never be reduced to zero. This simultaneousness could be the next stage but it can never be realized from the perspective of the distinct communicators. If this is true, then the modern age of telecommunications provides the final and most favorable milieu for completion of Enlightenment. The modern age of telecommunications as a field of possible actions involves responsibility. As we can see, if we do not make the best of our possibilities we are responsible for that too. Accordingly all of this, the modern age of the ubiquitous communication gives more possibilities, more responsibility and it requires more courage. But which phrase is right: more or most? If our modern age provides the final and most favorable public-communicational space for social action we should use the phrase ‘most’. Accordingly we are entitled to diagnose a new age of Enlightenment because of mere superlative degree.

First and last I picked up three elements from the traditional concept of Enlightenment. My firm belief is that we cannot separate the concepts of the freedom-responsibility, the public-communicational space and the courage to act from the concept of Enlightenment. Therefore, if we can show radical changes in the case of these three elements then we need to accept radical change of the process of Enlightenment. Since the modern age of telecommunications is a change that sets the scene for all of three elements, we are entitled to define a new age of Enlightenment.

## Getting no answer? An experimental study on unavailability in SMS communication

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Where ever you look or listen the mobile phone is everywhere. No matter if you are on the bus, in a restaurant, in the cinema or even in a lecture, the mobile phone rings, bumbles, vibrates, pipes or plays the latest hit in the music charts. Nowadays, when nearly everybody has a mobile phone, availability everywhere and every time seems to be granted. However, even if we can be contacted anywhere and at nearly any time, it doesn't mean we want to.

At first, entering the mobile age meant to most people a gain of freedom and individuality, but meanwhile this independence is perceived as compulsory. At present mobile availability seems to be a must and it is expected to keep times of unavailability as short as possible. It can be noticed that these changes in "mobile society" are increasingly experienced as oppressiveness. People no longer see their freedom in the possibility of permanent availability. They rather see their freedom in times of mobile unavailability by switching their mobile phone off or not answering the phone.

These developments give reasons to argue, that we attained a turning point in mobile unavailability. Mobile phone users are confronted with a new challenge. They are no longer confronted with the so called "dilemma of availability", but with the "dilemma of unavailability". Because of the rapid diffusion of everyday life, mobile phones users had to deal with the consequences of mobilisation on a personal and social level. In the course of this, they had to find appropriate forms of handling mobile availability and to implement these in their social behaviour.

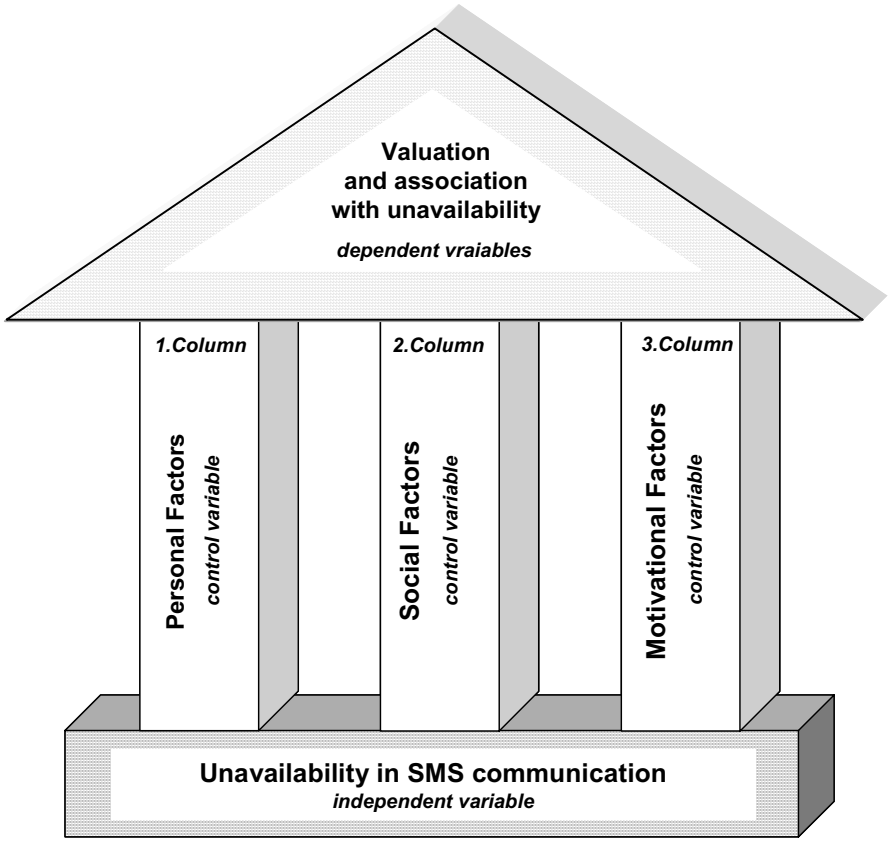
Now there is a new task: Mobile phone users have to come to terms with handling mobile unavailability. Therefore, it is necessary to analyse whether mobile unavailability causes changes on a personal and social level, such a mobile availability does.
For that reason the presented study analyses how people deal with the problem of unavailability in SMS communication – meaning that a sent SMS is not answered. It focuses on the sender's perspective in regard to his or her emotional reactions and behaviour. The main interest of the empirical study can be summarized with the following research question:

*What influence have personal, social and motivational factors on evaluation and handling of unavailability in SMS communication?*

### Theoretical Background: The Theoretical Building"

The multi-dimensionality of the research question is an approach to integrate different disciplines of science. According to the theoretical background it meant that the object of investigation was related to several psychological theories and ideas of communication science. It was questioned if there are any causal connections between unavailability and emotions of mobile phone users as well as their reactions and behaviour patterns towards unavailability. In addition personal, social and motivational aspects of human behaviour had been taken into account as possible influencing factors. These elaborations are visualised in the graphic below (graphic 1). The "Theoretical Building" represents the basis for the theoretical background of this study.

*Graphic 1: „The Theoretical Building"*




*Source:* Arlt (2007)

### The Basement

The basement of the "Theoretical Building" consists of the two terms *SMS communication* and *unavailability*. At the same time they are the central object of investigation. Since a few generations time the mobile phone functions as a multifunctional device. It is no longer represented just as a medium for information and calling, but also as a medium of mobile written communication (compare Höflich/Rössler 2001: 437-438). SMS communication refers to the Short Message Service (SMS) - often called text messaging - that enables mobile phone users to send or receive short text messages.

According to the classic ideas of communication science, the term "communication" is popularly understood as a process of passing information and understanding between one person and another (compare Maletzke 1963: 18). But the communication process via short text messages can be interrupted or confused by mobile unavailability, which can cause problems of misunderstanding. METTLER-MEIBOM (1994) distinguishes between technical and social terms of availability. Based on this distinction it is also possible to differentiate between a technical and social dimension of unavailability. The presented study focused on the social dimension of unavailability in SMS communication, which is caused by the social behaviour of mobile phone users.

**The Three Columns**

Observations of peoples' everyday life and their attitude towards media show that they use media quite differently. Explaining human behaviour can be seen form the division between personal and social factors. Following the assumption that attitudes towards media and media use correlate with *personal factors*, the revelation of possible relations between these factors was tried (compare Schmitt 2004: 152). „Personality is a dynamic organization, inside the person, of psychophysical systems that create the person´s characteristic patterns of behaviour, thoughts, and feelings" (Gordon Allport 1961). In the study at hand the characterisation of personality is based on the Big Five - Model. Personality is described by five factors: *neuroticism*, *extraversion*, *agreeableness*, *conscientiousness* and *openness to experience* (compare Bartussek 1991; Borkenau/Ostendorf 1991; Costa/McCrae 1992).

Apart from these personal traits *social factors* play an important role for explaining human behaviour. Our actions always take place in a certain social context. Theories of social psychology imply "an attempt to understand and explain how the thought, feeling and behavior of individuals are influenced by the actual, imagined, or implied presence of others" (Allport 1968: 3). There exist several approaches to the subject of interpersonal relationships. The presented study focused on the stage of building up a new personal relationship. Starting point was the following situation: Two people meet on a party for the first time, find each other quite attractive and decide to stay in contact. At the end of the party they change their mobile phone numbers. For building up a relationship they need to reduce insecurity and find a common basis, therefore they use SMS (compare Döring 2000). Leading to this the described situation provided the basis for the experimental manipulation. The social factors are accounted for analysing evaluation and handling of unavailability in SMS communication in this special context.

In addition to the first two columns a third dimension has an influence on individual behaviour. This dimension contains *motivational factors* in form of personal needs, expectations and motives, which are specified in the uses and gratifications approach. In the understanding of uses and gratifications theory "social and psychological origins of needs, which generate expectations of the mass media or

other sources […] lead to differential patterns of media exposure (or engagement in other activities), resulting in need gratifications and other consequences, perhaps mostly unintended ones" (Blumler/Katz 1974: 20). For revealing the third dimension of human behaviour, it was necessary to be aware of motives and gratifications of sending SMS. Therefore gratifications elaborated by already existing studies on the mobile phone were included in the questionnaire (compare Höflich/Gebhardt 2003; Höflich/Rössler 2001; Leung/Wei 2000; O`Keefe/Sulanowski 1995).

**The Roof**

The roof of the "Theoretical Building" refers to the effects of mobile unavailability on human behaviour. In study at hand deals with the following aspects: evaluation of unavailability, emotional reactions in the described situation and strategies to handle unavailability, as possible fields for changes in behaviour. Based on this, WEINER'S "Attributional Theory of Motivation and Emotion" (1986) delivers the theoretical background for these fields of changes. He defines emotions "as a complex syndrome or composite of many interacting factors. Emotions are presumed to have positive or negative qualities of a certain intensity that frequently are preceded by an appraisal of a situation and give rise to a variety of actions. Affects therefore come at a juncture between behavioral events, summarizing reactions to he past and instigating future actions" (Weiner 1986: 119). According to these considerations and to survey the effect of unavailability in SMS communication five dependent variables have been constructed: *situation-valuation*, *cause-attribution*, *emotions*, *reactions* and *behaviour*.

## Method

### *Procedure.*

The study was carried out as an online questionnaire experiment. The data collection was conducted between January and March 2007. German students were asked to complete a questionnaire being presenting in three different versions, thereby realising three different stimulus materials. Subjects were asked to imagine themselves in the following situations: After flirting at a party, mobile phone numbers were exchanged. Subjects should image that they sent an SMS to the new acquaintance during the next day; and waiting for an answer firstly, for one hour, secondly, for one day and lastly, for one week.

### *Design.*

The study included the two independent variables *unavailability in SMS communication* and *gender*, referring the gender of the participating subject. The experiment was conceptualized as a 3 x 2 design. Within this design six experimental manipulations were realized, consisting all possible combinations of the two factors. The factor *unavailability in SMS communication* was tested on three different levels

(no answer for one hour/ one day/ one week) and the factor *gender* with the two levels male and female.

**Selected results**

***Subjects and cell allocation.***

A sample of N = 499 (40% female, 60% male) undergraduate students possessing a mobile phone took part in the experiment. Demographic statistics indicated an age ranging from 18 to 58 years with a mean age of M = 23.8 (SD = 3.3) years. At the moment of data collection 46% of the students did not have a partner and 53% lived in a consistent partnership. Referring to the cell allocation for the three levels of unavailability, table 1 shows that they nearly equally distributed ($A_1$: N=174, 35%; $A_2$: N=152, 30%; $A_3$: N=173, 35%).

*Table 1: Cell allocation*

| **Unavailability (A)** | **Gender (B)** | | | | | |
|---|---|---|---|---|---|---|
| | $B_1$: male | | $B_2$: female | | Sum B | |
| | N | % | N | % | N | % |
| $A_1$: no answer after one hour | 108 | 22 | 66 | 13 | 174 | 35 |
| $A_2$: no answer after one day | 91 | 18 | 61 | 12 | 152 | 30 |
| $A_3$: no answer after one week | 99 | 20 | 74 | 15 | 173 | 35 |
| Sum A | 298 | 60 | 201 | 40 | 499 | 100 |

***Effects on the emotional reactions of the subjects***

Hypothesis 1: Women react more emotionally on unavailability than men.

To proof this hypothesis, the data was analyzed with fixed factor analysis of variance. The descriptive statistics for *unavailability* and *gender* in relation to the dependent variable *emotions* are presented in table 2. The results show a highly significant gender difference concerning the emotions of women and men in the experienced situation of unavailability. Compliant to the hypothesis women reacted more emotionally (M=2.64, SD=0.88) than men (M=2.18, SD=0.86). Reaching a significant main effect of *gender* ($p<.01$, $\eta^2=.06$) over all levels of unavailability on emotional reactions (compare table 2), hypothesis 1 was accepted.

*Table 2: Gender-specific findings to emotions for the emotions-index*

| **Independent variables** | | **Dependent variable** | | |
|---|---|---|---|---|
| **Unavailability (A)** | **Gender (B)** | | **Emotions-Index[1]** | |
| No answer per SMS… | | N | M | SD |
| Sum $A_{1-3}$ | $B_1$: male | 298 | 2.18 | .86 |
| Sum $A_{1-3}$ | $B_2$: female | 201 | 2.64 | .88 |
| | | | p | $\eta^2$ |
| *Main gender effect* | | 499 | <.01* | .06 |

*Annotations:* *p < 0.05; [1]Mean value of 16 items to emotions in the situation of unavailability

***Personal factors***

The first step to identify the influence of personal factors on emotions was to measure the Big Five factors *neuroticism*, *extraversion*, *agreeableness*, *conscientiousness* and *openness to experience.* Correlation analysis with the Big Five and the dependent variables showed the highest correlation between the factor *neuroticism* and *emotions* (r=0.43, compare table 3). This was the reason why in the following, I will go into detail exemplary on this effect. Analysis of variance and covariance with the factor *neuroticism* as control variable were computed.

*Table 3: Correlations between dependent variables and Big Five*

| **Big Five** | | **Indexes of dependent variables** | | | | |
|---|---|---|---|---|---|---|
| Big Five | N | Situation-Evaluation-Index[1] | Causal-Attribution-Index[2] | Emotions-Index[3] | Reactions-Index[4] | Behaviour-Index[5] |
| Neuroticism | 499 | .34* | .29* | **.43*** | .40* | .32* |
| Extraversion | 499 | .20* | .22* | .21* | .35* | .26* |
| Agreeableness | 499 | .17* | .26* | .20* | .35* | .26* |
| Conscientiousness | 499 | .21* | .27* | .21* | .39* | .26* |
| Openness to experience | 499 | .14* | .21* | .15* | .30* | .27* |

*Annotations:* *p < 0.05; [1]Mean value of 9 items to situation-evaluation, [2]mean value of 8 items to causal-attribution, [3]mean value of 16 items to emotions in the situation of unavailability, [4]mean value of 12 items to reactions, [5]mean value of 11 items to behaviour

The second step was to compare the results of analysis of variance and covariance. As presented in table 4, a most significant influence of the personal factor *neuroticism* was indicated. The findings showed that the main effect of the subjects' gender on emotions had become weaker after the covariance analysis (p<.01, $\eta^2$=.05) compared to the analysis of variance (p<.01, $\eta^2$=.06). Regarding the research question, the result underlined that the personal factor *neuroticism* influences our evaluation and handling of unavailability, in this case our emotional experiences.

*Table 4: Influence of the personal factor neuroticism*

| | Dependent variable | |
|---|---|---|
| | Emotions-index[1] | |
| | p | $\eta^2$ |
| **Analysis of variance** | | |
| Main gender effect | <.01* | .06 |
| **Analysis of covariance** | | |
| Neuroticism[2] | <.01* | .17 |
| Main gender effect | <.01* | .05 |

*Annotations:* *$p < 0.05$; [1]Mean value of 16 items to emotions in the situation of unavailability; [2]control variable for analysis of covariance

## Conclusion

In the presented study was analysed what effect unavailability and gender as well as personal social and motivational factors have on human behaviour towards unavailability in SMS communication. Research question and hypotheses suggested that duration of unavailability, gender of SMS-sender and the other factors have a different effect on the dependent variables. In summary the results indicated relations between the different aspects. In addition, they pointed out that is has been useful to integrate different psychological theories and ideas of communication science to analyse psychological aspects of unavailability in SMS communication.

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**Eszter Babarczy**

## *Anomy and Communication*

The paper examines a hypothesis concerning the relationship between certain measures of anomy and the size and type of the personal network. In our 2006 survey we polled a 1000 strong representative sample of Hungarians between ages 14 and 70. Beyond standard media questions and demographics, we asked them about life events and their methods of information gathering (who they approached for help and where they found information useful for their decision). The questionnaire also included 28 questions (all 4 degrees Lickert scales) concerning different measures of anomy, trust and information overload. Our first hypothesis was that different anomy measures measure different attitudes, some relating to levels of generalized trust, others to perceived social norms and yet again others to personality traits such as self-confidence. We also tested if information overload, or a media rich environment, and anomy are related. The preliminary findings show that our 28 questions are most easily characterized by social groups of different status: as if they related to perceived coping skills or the chance to succeed in life (this supports a Mertonian view of anomy as opposed to a Durkheimian one). Our second hypothesis was that a varied personal network leads to lower anomy rates (at least on certain scales) because people tend to perceive their environment as less chaotic and more orderly if they know people from different walks of life. This hypothesis was partly supported by our empirical findings: people do tend to be more "anomy-stricken" if they live in a fairly closed group where people all know each other (such as small villages or gipsy communities in rural Hungary). Finally, we examined the relationship between anomy measures and communication channels: we wanted to see if ICT and mobile use increases or decreases anomy measures compared to predominantly personal, face-to-face communication. Even though it is not easy to differentiate the effect of age, of income and of education and the effects of the preferred means of communication, it seems that mediated communication does not imply more anomy.

**Albert-László Barabási**

## *Time and Networks in Mobile Communication*

For many problems of significant importance, like predicting a potential viral outbreak, the ultimate model and monitoring system would need to know the whereabouts of each individual in a country[1]. In industrial countries, with almost 100% mobile phone penetration, such information is readily available to phone companies. Indeed, if you have a cell phone, your carrier always knows your whereabouts, has a list of your friends and knows how often you kept in touch with them lately. Each cell phone communicates with the closest tower, leading to a natural partition of the country into distinct geographic cells (see Fig. 1). Given that calls are recorded for billing purposes, one can reconstruct the movement of each mobile phone user, as illustrated by the solid lines in Fig. 1. These records represent a huge opportunity to science, offering access to patterns of human behaviour at a level and of a detail unimaginable before. Quantifying and understanding such patterns may help us design better public transportation, safer public spaces or control a disease outbreak.

The purpose of this talk is to quantify the main features of human activity and travel patterns that can be discovered from mobile phone data. We start by testing the standard hypothesis that human activity is fundamentally random in space (travel patterns) and time (interevent times). This hypothesis is in conflict with several recent measurements. For example, all measured inter-event times between consecutive human driven events, like library visits or e-mails, appear to be described by heavy-tailed processes[2,3] challenging the traditional Poisson-process based modelling framework[3]. Similarly, money tracking measurements indicate that individual travel patterns between blocks may be heavy tailed[4]. In fact, just about any data that captures human activity patterns indicates significant deviations from the random expectation, indicating that human activity has a bursty character with well-defined mathematical characteristics. We show that simple models rooted in statistical physics go a long way in sharpening our understanding of the key features, difficulties and paradoxes involved in modelling human-driven processes.

We also find that in contrast to the irregular bursty human activity patterns, human travel is far more regular than diffusion models would predict. We show that these travel patterns are described mathematically on many spatiotemporal scales by a centrally biased random walk.

Technology, while boosting our communication and monitoring capabilities, has inundated us with huge amounts of information about human activity patterns. This flood of data has the power to revolutionize our understanding of human behaviour, with applications from urban and transportation planning to emergency response. Such data-driven opportunities have forced us to explore both the limitations and the potentials of our tools. This is a win–win situation, a vivid example of the changing nature of science in the 21st century, taking us into areas where we did not dare, or could not venture before.

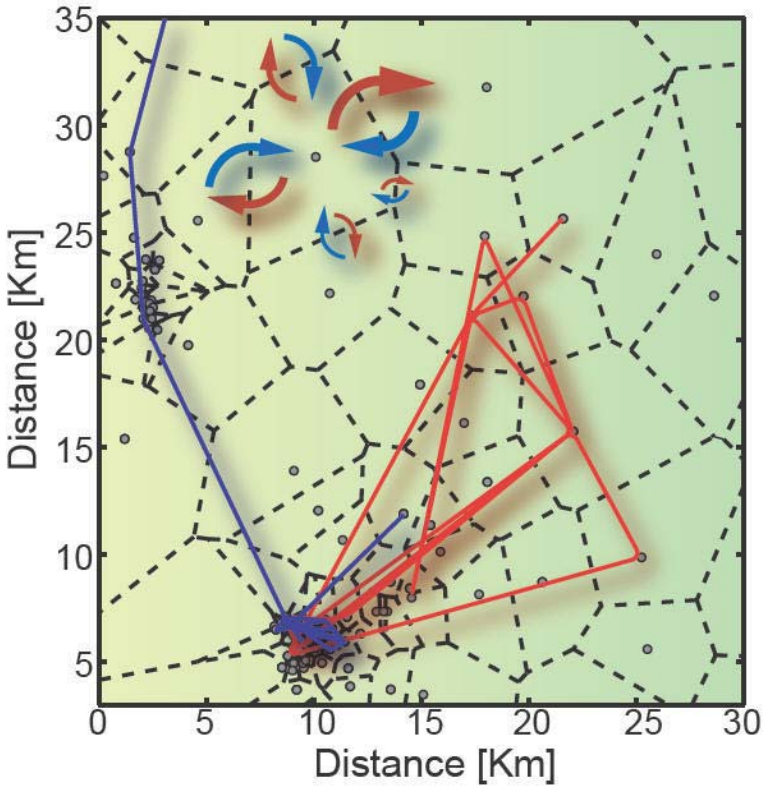


**Figure 1** *Individual and block based representation of mobile communications. Each circle represents a cell-phone tower, the dashed lines corresponding to the Voronoi diagram that roughly delimit the main reception zone of each tower, partitioning the space into individual cells. The blue and red solid lines show the trajectory of two mobile phone users, illustrating how the call activity helps us to track individual motion. For many applications, like modelling the spread of diseases, it may be sufficient to monitor the flux capturing the aggregated motion of individuals between different cells, as illustrated in the top of the figure, rather than individual trajectories.* [After ([5])]

This work is done in collaboration with Marta Gonzalez and Cesar Hidalgo. Albert-László Barabási is in the Center of Complex Network Research, Departments of Physics and Computer Sciences, Northeastern University, Boston, MA02115, USA. email: alb@nd.edu

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# Logics of Reconciliation: the Cultural Stakes of '2.0'

## *I. Introduction: A diagram and a map*

1.

> 'With many areas of the web... "2:0-ness is not something new, *but rather a fuller realization of the true potential of the web platform...*'(O'Reilly, 2005, *my italics*).

The Convergence theorists of the last decades of the 20th Century set out to explore/predict the eventual fusion of a series of previously discrete forms, industries, processes, and hardware and software objects. If the rings in the Venn diagram Nicholas Negroponte of MIT drew[1] in the late 1980s (see Brand, 1987), to map processes of convergence do not yet overlap, this is due to local difficulties, or indeed marketing/the markets (where the re-introduction of distinction/difference blocks 'natural' tendencies). The *ontology* of information is such that it will tend towards total convergence, thereby perhaps achieving finally its 'true potential'.

This teleological understanding of information technology has been the longstanding view of many influential in the information industry. It certainly informed many different kinds of industry maps for ICT futures in the last decades of the 20th Century – including for instance Apple's *Knowledge Navigator* vision. It sits behind predictive accounts of the networked informational future found in business journals, in the technical press, and in 'boosterish' magazines such as *Wired* (but also in 'critical technical' or hacker journals such as *Mondo 2000*), in the 1990s.

This understanding also had a performative force: influencing the development of hardware and software projects and products: the 'integrated application' concept, but also its later operationalized versions, for instance in suites such as *Office*) draws on it, as did Newton, Apple's early stab at a PDA. The failure of the latter acted both a warning (about bleeding edge technologies and the network contexts within which such devices can be sustained) and an on-going challenge, not only the ultimate converged personal device, but even one that offers what Newton promised, has yet to be built.

Looking back at these Convergence models, it is clear, that they were taken up, above all, because they not only described the dynamics of the integration of previous media technologies (their re-mediation) and found places for new forms, it also mapped out the totality of the new terrain of information. This dynamic involved a process of expansion and contraction: older media would contract, losing its form and becoming the content of new media, as McLuhan, writing about earlier media technologies, once put it, but the converged system that would result would have a vastly expanded area of operation. ICT systems that is, would spread far further, and penetrate more deeply into spheres of previously unmediated culture, than the sum of their constituent parts might suggest. These models, in sum, were a diagrammatical way to say 'Internet Explosion' and the net itself was often understood within discourses drawing on these models as the premiere means by which what Levy called the collective intelligence (Levy, 1994) of a myriad of discrete 'personal' computers, computer code, and personal computer users themselves could be yoked together and their discrete

[1] Convergence diagrams take many forms – and were produced by many within the relevant industries, by the business schools, alongside departments such as MIT.

contributions amplified and also corralled into a system. It was in this sense both a proximate destination and indicated on-going progress.

Convergence discourses, leaning on this sense of ontological revelation, by definition entail a destining of the cultural and the social by the technological – a sense that convergence in one domain, the domain of the technical, would have 'inevitable' consequences in others. In many accounts this was twinned with a sense that the market – in this case the newly formed and converging industries – would be where, would be the means by which, convergence would be applied. Reflecting this, many models based loosely on Negroponte's *confuse* the technological with the industrial (and some indeed explain convergence *only* in terms of the fusions of various industries - telecoms, computing, 'Hollywood', classically - that it 'will' produce). We might note too that there is little doubt in the minds of those who defended convergence that's its 'nature' would be derived from the digital 'substance' of the new networks. (It is an intriguing question, though not one pursued here, to ask what happens if there is a 'clash' of what are at the least perceived to be, or have been perceived to be the revealed ontologies of different 'contributor' technologies: how does the form of realism implicit in the myth of total cinema, as defined Bazin for instance, operate in relation to that trajectory towards total communication outlined by Virilio for instance?[2]). At any rate, it was on the basis of the prioritization or naturalization of the technically-given trajectory of Convergence - which is then taken to inform a particular industrial/market direction - that Roger Silverstone, looking at the take up of the Convergence model within social scientific and humanities-based accounts of new media culture, produced more or less at the same time, said that Convergence was a 'dangerous word': at least for those committed to an analysis of the intersections of information technology and the social world that begins not with what is given, but with what is made: *techno-culturally* as it were (Silverstone, 1995), and what might therefore be critiqued.

2.

Cultural theorists responding to the expanding impact of information, in the 1980s and 1990s, in the era of personal computing and in the first Web years, tended to offer a markedly different account of the relationship between (information) technology and culture. An early and highly influential example of this form of analysis, and one with a logic that does not focus on Convergence as an industrial process but on aspects of informational culture can be found in Frederic Jameson's account of late modernism/post-modernity in the *Cultural Logic* essay, which appears in both *New Left Review* and as the opening chapter to the Postmodernism/Late Modernism (Jameson, 1984, 1991). Drawing on Mandel, this work mounts a defence of history and Marxism against the claims of Daniel Bell and information society theory, revealing the cultural logics of what is defined, against Bell, as informational capitalism. Jameson's argument is that the technologically defined landscape that informational culture gives us is 'faulty', in the sense that it occludes a different informing logic. As he puts it:

> '[O]ur faulty representations of some immense communicational and computer network are themselves but a distorted figuration of something deeper, namely the whole world system of present day multinational capitalism….(Jameson, 1984, NLR`: 79).

What is articulated in the technological forms in which we live is not a purely technological logic. In seeking to understand the cultural forms that this contradiction, intrinsic to the character of this form of capitalism, produces and articulates, Jameson undertakes an exploration of contemporary culture through an engagement with its architectures, films, bodies, subjects. The vision he offers is of a depthless cultural space too vast to navigate or measure along with a body that can no longer easily hold together[3], or indeed hold apart from what might previously have been presumed to be distinct

[2] See Bassett, 2008, forthcoming.
[3] This not only connects this early work to Deleuze/Guattari but also via this to Hardt and Negri's *Empire*: both texts widely used to investigate contemporary techno-culture.

from it: nature, non-human objects, the organic and in-organic (the references to Haraway and Deleuze are evident and are elsewhere acknowledged).

The stress here is on the centrifugal as much as the centripetal forces of information. What is explored is not only what is pushed together or brought into the same plane through information's capacity to dematerialize/re-materialize, but what is forced apart: community, narrative patterning, the individual's sense of the self as a self, for instance, but also 'reality' and its 'representation' – since as we have seen, Jameson's view is that information produces a world that shows itself to us as purely technological even while it continues to be informed by a social/historical totality. Jameson thus concludes that cultural logics of the coming information society are characterized by schizophrenia, a fragmentation of the self, and of language, and by a dis-orientation that is both critical, in the sense that traditional forms of critique are stymied, and 'real' in the sense that it is configured in, or materialized through, the forms of material culture (the informational technologies hard and soft) these dynamics produce. In response to this dis-orientating new world which provides no place from which to launch older forms of analysis or critique, and which renders older forms of ordering such as narrative ineffective, Jameson's call was for exploration: New forms of (cognitive) mapping, capable of rendering this new world known, needed to be developed, he said. In some of his other writing he explored a series of tools of figures that might begin to do this, in particular his exploration of 'dirty realism' as a figure for informated capital, might be relevant here (see Jameson, 1994).

A diagram indicating future tendencies and a map that recognizes what cannot be mapped using the tools with which (within which?) the exercise is performed. Jameson and Negroponte, writing at around the same time, in the years of personal computing and in the early years of the development and diffusion of ICTs (in the period of ICT 1.0.[4] perhaps), thus both recognized the importance of mapping informational systems. The models they produce offer divergent accounts of the dynamics of these emerging systems: Convergence is a model stressing the centripetal forces fusing information modes, tools, industries together. Jameson's sense of the cultural logics of information, in contrast, concerns the centrifugal – and discontinuous - force of information: not only as it is given to us, as it appears, but as it is located within, and as it at once articulates and obscures, a broader social totality: the horizon of history.

Setting these very accounts in relation with each other is productive. To do so might expose a naturalized set of alignments. Finding the centripetal moments of the convergence process stressed in this influential *technological/industrial* account, and the centrifugal moments (moments of dis-convergence or re-fragmentation) emphasized in this also significant *cultural* analyses: we may all too easily read technology as 'control' and culture as 'freedom' or 'resistance' - or technology as ontology and culture as interruption. This might be a logic contained in some models of Convergence (and oddly enough in many weak accounts of social construction), but it presumes a division between culture and technology that I would rather question than accept. Indeed, part of what this paper aims to do is to disrupt the naturalized vision that says cultural perspectives (cultural theories) on information and society focus on the gaps and the spaces (the increasingly rare moments when the lifeworld disrupts the system) while technologically/industry led perspectives explore the ways in which information technology increasingly joins *itself* up.

The question of the market is crucial here: underpinning Jameson's sense of the fragmented individual and the rubble of empty signifiers of post-modern culture is a clear apprehension of the vastness of informational systems, and a sense of their smooth integration, and beyond that, or rather giving it a new horizon, capitalism as the informing force. And, while Negroponte's account may operate with a strong sense of technology's destining, it is, in the end, an industrial model: an account of how these developments will be used to produce specific products (particular kinds of media) for particular markets. Both of these theorists of information, are, albeit from very different perspectives, exploring the cultural and technical forms informated *capital* takes or allows (the difference inheres in these two terms perhaps). The inter-connections revealed here, and the role of the market in each

[4] The earlier history then constitutes the pre-history of ICTs as mass communication systems.

account, suggest that the techno-cultural relation envisaged is more complex than any double binary might suggest.

Where do we go from here? In the second section of this paper, I spin forwards, and, informed by the discussion of Negroponte and Jameson's work above, I set out to explore the contemporary relationship between '2.0' (read as an essentially *industrial* description/diagrammatic for the contemporary post-Convergence networks) and Henry Jenkins' reading of contemporary convergence as a *cultural* form, elaborated in *Convergence Culture* but first developed in the earlier 'cultural logics' article. I focus on the latter here, not least because it provokes comparison with the earlier Jameson piece, indeed might be understood to offer itself as a replacement or update, through the echo in the name.

Part of what is explored here is what it means to declare that new maps are necessary at this point: in what way, that is, are these developments substantially 'new'? What is at stake in taking a bundle of Internet technologies, architectures, products and practices, computing/ICTs and declaring them distinctively different from earlier web forms (different culturally, technically, ontologically?). The 'shock of the new' impacts on forms of thinking about informational culture and it is useful to be aware of the possible *ideological* consequences of refreshing the promise of computing, and forms of critical analysis, at this point (see Bassett, 2006), both in relation to industrial and cultural discourses.

## ***II: New Worlds, New Maps***

### **i. 2.0 as Post-Convergence Industry Manifesto**

If Negroponte's teething rings (Convergence with a capital C from now on) were a favoured diagram for the rise of ICTs in last decades of the 20th Century, Web 2.0 sets out to describe and predict development trajectories for contemporary forms of new media. The 2.0 label was coined by Tim O'Reilly, a net publisher and industry insider with a long track record of engagement in the cultural politics of the new media (via the Electronic Frontier Foundation or EFF for instance). He defined 2.0 as a set of 'Design Patterns and Business Models for the Next Generation of Software[5], and offered up it up as a normative and descriptive model for the development of new tools, products and ICT architectures. It was certainly as a normative that it was presented to developers, who were invited to take it up as a challenge and write to its standards, as David Berry has pointed out (Berry, 2007). 2.0 is at root a manifesto for open architectures and for the maintenance of collaborative peer production. The 2.0 argument is that these forms of production and these kinds of architectures will produce workable spaces, will allow for the development of new tools, and in sum will enable the continued evolution of the net as a creative space; keeping it 'live' perhaps (non-coincidentally one of the principles discussed as 2.0 is RSS). These principles inform the choice of web artefacts, services and operations taken to define the new (2.0) over the old (blogs over home pages, folksonomy over taxonomy for instance) in a list proffered by O'Reilly, and since
widely adapted and extended.

The system of affordances discerned and championed here is based on a reading of ICTs that stresses the centrality of users and of user production and activity to the well-being of system as a whole, and that understands this activity as essential to the evolution of what is read as a profoundly collaborative system. It is in this way that 2.0 is most obviously to be regarded as a post-Convergence model – the incorporation of user activity as intrinsic to the developing architecture of convergent systems – would be difficult to figure into Negroponte's model, since this reads the system emerging at the crucible of its three rings in terms of the constituent technologies, and takes no account of the diachronic and multi-dimensional aspects of this system, which might be regarded as its emergent features. In 2.0, by contrast, the development of the system as whole is understood to depend on the

[5] What Is Web 2.0? Design Patterns and Business Models for the Next Generation of Software, Tim O'Reilly (2005).

interplay between the use of the system and the exploitation of what is produced or adapted through use (new code, new objects, new practices, new standards, new architectures). 2.0 accepts disturbance as intrinsic to the system.

There are, of course, alternative business and technical blueprints for future network development that do not understand open systems and the principle of collaboration as inevitable, or even as viable. David Clark's demand for a new 'clean slate' internet, where property rights are to be reinstated and protected, provides a different blueprint for the future, and was criticized in some quarters, not only on the grounds that it might block the efficient exploitation of the ICTs but also for its supposed totalitarian qualities (for an example see *I welcome my Internet Overlords*, Baard, 2005[6]).

In contrast to the clean slate principle, 2.0 might be understood to make claims that the system it describes and valorizes is an 'architecture of freedom': I deploy de Sola Poole's term here with the intention of retaining its ambivalent connotations (de Sola Poole, 1983). At least, 2.0 claims 'freedom' and 'co-operation' are good for (the software) business, and murmurs that embedding these qualities in future ICT architectures may also be good news generally in the sense that it might be felt to forward a different set of concerns, those cohering around, for instance, encouraging forms of media that might support freedom of information, that might encourage the production of a workable public sphere in a democracy, and avoid entirely surveillant societies for instance. It is important to be clear here: These possibilities may be inherent in the 2.0 model, they may even be intrinsic to the architecture, but they are incidental to its central concerns, which concern software production and the conditions within which it can prosper.

**ii. 2.0 as Cultural Map?**

Jameson's account of the information society and Negroponte's sense of the development of the convergence of the key technologies underpinning a new media landscape were developed only a few years apart, but operate in registers that set them far apart. 2.0, written in more technologically aware and technologically saturated era, and defining an system in which use increasingly feeds into production or reproduction (user actions produce spaces, code begets code) immediately skipped registers and has been widely deployed within cultural analyses. Indeed, the more or less explicit 2.0 adaptations come thick and fast. Writing this paper, for instance, I am not only reading the technical/business discourses on Web 2.0 (notably one by Tim O'Reilly[7]), and the explorations of techno-culture 2.0 falling fairly squarely into cultural studies (see below), but also *Accelerando* a singularity-lit book by Charles Stross, which might be described as Science Fiction 2.0, which is self-avowedly a mocking exploration of what happens when Economy 2.0, meets the Vile Offspring (Moravec's mind children in a new guise), and might on this basis also be understood as a dystopian take on Yochai Benkler's *Coase's Penguin*. (Stross, 2005). I am also following postings by tactical medium theorists discussing their response to 2.0 and accessing a set of stormy debates on a British list about whether media studies should be abandoned for an all-new 2.0 version (see the MECCSA list). All this might amount not only to evidence of a shared sense - dispersed, unofficial, but also coherent - that a set of developments in technologies, services, practices, and productions, add up to a new order of informational *culture*, but also to a sense that the technical properties of this culture are important, and have been made visible by 2.0 in useful ways.

[6] See Michael Crawford's 2005 article: I welcome my new internet overlords.
Imagine, if you will, the potential of our New Internet: not only by technical design, but by international treaty (enforced by the threat of military intervention on the part of the UN Security Council), each nation will have a national firewall which is as transparent as the air to fully-licensed Windows Media Video files of Barney the Dinosaur and paid-up Wal-Mart orders, yet absolutely impenetrable to content not sanctioned by Homeland Security, the Republican Party, the 700 Club and the Boy Scouts. I, for one, am weary of our present Internet, cesspool that it is of moral depravity and copyright infringement. I long for the days of yore, when men were men, women wore hoopskirts, and racial minorities were separate but equal. And so, I raise my right hand and shout with an enthusiastic "Heil!":

So, given the energetic ways that 2.0 has been put to work can we draw a meaningful distinction between cultural and technological/business models for new networks? Would such accounts produce a different reading of the dynamics of emerging post-convergence systems? If so, what would the difference be that *made a difference* in these culturally inflected models? In the next section, still in pursuit of this distinction, I turn to another example of a cultural exploration: Henry Jenkin's account of convergence *culture*. One of its virtues of this account is that it stresses the need for specifically cultural accounts of the new forms of information, and so puts itself forwards here for investigation.

## ***Part III: Contemporary Convergence Cultures***

### i. Jenkins: Fandom as a general principle?

Henry Jenkins' account of convergence culture begins with the assertion that technological accounts of convergence remain unable – and possibly unwilling - to grapple with social and cultural questions that they raise (Jenkins, 2004). This gap, it is argued, rightly in my view, might produce a degree of blindness to the dynamics of the systems themselves – particularly given that activities and practices of the users increasingly play a structural role in the constitution and operation of new media systems. A culturally sensitive account melding an awareness of political economy and the new media industry with cultural studies' capacity to understand and appreciate cultural production in many spheres including those of reception thus adds to our understanding of the dynamics of these systems, both as they are narrowly and broadly conceived. For these reasons Jenkins' account melds political economy, audience studies, genre analysis[8]. Finally there is an argument that the optic of cultural studies may enable questions such as the social significance of contemporary techno-cultural forms and practices to be addressed and a cultural politics/cultural policy to be (re)formulated.

Jenkins recognizes that questions of ownership are crucial to the future shape of this system. Its topology will be decided through the outcome of the tussle between a system based on the continued and advanced actualization of various forms of what Levy has called collective intelligence (which I might call participatory intelligence) and the re-privatization of information networks through Intellectual Property Law extension/and its implementation in various hardware and software forms (trusted computing, clean slate style moves perhaps, *ad hoc* DRMs, or further legislation).

Jenkins' model of convergence culture is centred on participation and its enablement. His argument is that networked techno-cultural forms are based on the principle of participation: permission to adapt, or *use*, no longer has to be appropriated, but is now a given, and is instantiated into the system rather than remaining in some sense external to it. Participation is available to all. It may in fact be a condition of use. And it does not require particular skills or rights: anybody can blog. Assessing various forms of contemporary techno-cultural practice Jenkins extends his earlier explorations of audiences and users (for instance Jenkins, 1992) to map some of these new practices of participation across new media networks of all kinds (transmedial narratives, blogging).

Thus far it is relatively difficult to see how this useful cultural 'translation' of a set of tensions already articulated within the 2.0 debates produces anything radically different from 2.0, as it was given as an industrial model. These similarities continue, since unlike the Jameson account, divided from the technical descriptions by an ideological distancing, Jenkins' own account of convergence culture is determinedly post-ideological: Increased participation, increased user engagement, collaborative production, all do what they say, and systems to promote them are to be encouraged. This produces a particular take on what I would describe as the mode of participation? We have already noted that Jenkins' understanding of the existing dynamics of convergence cultures is based on his earlier work on fandom. What is being suggested here is the generalization of the logic of fandom, designated by Jenkins as the preferred mode of participation in convergence culture. And

[8] The US-focussed nature of this account in so far as it pertains to cultural studies is perhaps clear here since Jenkins claims that this is a new meld. It may seem less new beyond the States. The Birmingham tradition for instance and those emerging from it have arguably made this connection. Robin Mansell, in New Media and Society, also argues, although from a rather different direction that political economy has been neglected in accounts of techno-culture.

fandom as a mode of participation suited to a particular system architecture, is thus configured here both as normative and descriptive.

This produces (naturalizes) a particular set of demands. Firstly it requires that the open system model (see above) is broadly defended. Secondly, the argument is that a new kind of contract between big media and consumer-citizens-fans based on joint responsibility in a shared (although clear entirely unevenly controlled[9]) media economy in which we all participate, needs to be developed. For academics and policy makers this is explicitly translated into a demand to abandon the historical distinction made in media/cultural studies between different kinds of cultural producers – the market, the public sector, activists – and to work with corporations to shape and forge agendas for forms of participation that satisfy perceived social and cultural needs. The cultural injunction, offered at the level of critique and at the level of policy, but generated by a particular reading of what the forms of information give, is to participate from within, rather than disrupt from without. As Jenkins puts it, we should blog not jam.

Essentially here Jenkins gives culture up to the market. Despite his claim that a distinction in approach is necessary and productive if convergence culture is to be understood, there is little that distinguishes the 2.0 understanding of the functional role of the participating user/cultural producer, recognized as integral to the system, from Jenkins' own fan-based analysis of the possibilities available to these actants.

By contrast the gulf between Jameson's sense of the cultural politics of informational capitalism last time around and Jenkins this is wide – and it is now clear that the key difference between Jenkins' analysis of 2.0 and Jameson's account of informational culture, concerns not the technologies of which they write, but the critical approaches. Above all these temper *how* participation in this cultural landscape is understood. The calls for mapping made by Jameson and Jenkins' at specific moments in the history of the informatization of culture, each of which designated as new, may thus be understood in very different ways.

Within this context it is useful to note that the visibility of technology (the force with which it presents itself to the world as technological) varies to the degree that it is felt to be new. So that a *critical* cultural mapping of 2.0, might need to reflexively explore the production of the moment itself: to think through not only how 2.0 articulates or understands a series of real technological developments, but also how it gives us the new afresh, making a series of exhausted discussions, conversations, arguments, around information and culture live again: 2.0 is a form of re-enchantment, and if there are ideological consequences in refreshing the promise that technology can deliver us up to a new all participatory future: one of which might be to promote analyses where questions of social power are reduced to (resolvable) questions of basic access: As a map this is too sere.

### ***iv. Logics of Reconciliation?***

In the final section of the paper, I explore the potential for exploring understanding contemporary convergence processes in terms of industrial/cultural logics that operate neither in terms of fragmentation (Jameson) or subsumption (Jenkins) purely, briefly referring to a diverse set of accounts each of which hints that the dynamics of contemporary information culture involve on-going processes of dispersal and multiplication, which are punctuated by moments of reconciliation and cohesion. My suggestion is that these moments of reconciliation might amount to a forms of, or moments of narration: which may, in some circumstances, be coerced.

Before doing so I return to say something about how protagonists in the earlier discussion have viewed centrifugal and centripetal forces operating within informational culture. Convergence, as mapped by Negroponte, stressed the centripetal force of information technology, exploring the degree to which the shift to the digital might subsume discourses, objects, older technologies, into a converged networks, organized and controlled in code. 2.0 is more complex – not least because it sets out to model systems are ecological (pervasive), that involve new and more diffuse use contexts, that

[9] Jenkins does pay some attention to the lack of symmetry between those who have the resources to 'blog big' and those who do not. The real point however is that participation itself, the unification of the participant in the system, is the key dynamic here.

increasingly enrol different actors, and that form and re-form with increasing rapidity. On the other hand, within this system (as Jenkins has stressed) everything is 'put to work'. Jameson's argument, in contrast to both of these is that informational capital (at least in his time) produced vast and massified cultural forms (and technological systems as cultural forms) also marked by fragmentation and dis-association. These systems drive us to live, with a certain intensity but without narrative: on the surface of things. The final three models considered here each explore a dynamic that re-negotiates – and/or relocates - the centripetal and centrifugal forces operating in information systems where the mode of participation is at issue.

First I refer briefly to the *Internet of Things*, where Julian Bleeker explores changing dynamics of agency emerging as ecological (pervasive) networks increasingly delegate forms of action to non-humans agents (Bleeker, 2005). One of his examples concerns pigeons equipped with carry sensors so that as they move through the city, they map pollutants in the environment. The argument here does not focus on the x-morphic forms of agency such creatures might articulate (see Philo), but rather exposes the degree to which conventional distinctions between the user and the system are undermined not only through the proliferation of non-human actors, but by a change in assigned roles: participation itself is here shifted from the human to the non-human and is given a place at once in the system and outside of it. Participation, that is, does not guarantee that there is a who or a what to 'join in', rather it can be viewed as a function carried out by a component of a system itself.

I now turn to Helen Kennedy's consideration of identity and the Internet. This, drawing a line between 'identity 1.0' and identity practices in developing net cultures, argues that it is the connections between places where we act and feel as an individuals, rather than the distance between such acts or such (multiple) performances, that provides a key to understanding identity. Critical frameworks grappling with 'feeling and being' rather than those exploring the virtual selves through the principle of (multiple) performance are required. The dynamic operating around identity Kennedy develops is thus based not primarily on fragmentation (on how the web divides 'us' up, splitting us from our IRL selves), but on what holds us together. The requirement (desire) to remain connected might then be written into the system. In my own work on mobiles I have explored similar grounds by way of a focus on forms attention and 'absent-mindedness'.

Kennedy's sense is that identity is less multiple than earlier cyber-cultural theorists might have believed, or rather that the organization of these iterations of the self, is often designed to overcome separation, leads to a consideration of forms of cultural production (associated at least with the production of self) that are multiple in the more literal sense. I am referring to the forms of cultural production characteristic of 2.0, involving a process whereby a work (code) is produced not only using shared cultural memes (to use the word metaphorically) but shared shards of others coded work. These are thus both multiple productions and 'belong' to an individual 'author'. The Creative Commons copyright/left system is an attempt to negotiate the legal and economic implications of precisely this oscillatory imbroglio: where participation may be individual and collaborative, human and non-human, identifiable and non-identifiable, at different moments. It famously 'reserves some rights' - for the individual while attempting at the same time to recognize the essentially collaborative nature of cultural work. Interestingly the moment of reconciliation here, is the moment when profits might be derived. These licences, that is, understand the work itself as a different object, as it stands in relation to the market: at which point (at the point at which the market kicks in) the convergence of producer/work is dissolved: this system has nothing at all to say about 'moral' rights of ownership which are based on a recognition of particular forms of authorship, and of particular kinds of authors.

The third account of contemporary post-convergence culture to which I want to very briefly refer is that developed by Roger Silverstone in his account of the mediapolis (Silverstone, 2007). This is an account of contemporary convergence processes operating at a global scale to produce a media ecology that is cosmopolitan (in the sense in which Beck uses the term for instance). Drawing on Arendt's sense of necessary publicity, Silverstone is concerned here not primarily with the content of global media networks, but with the form and arrangement of the systems that constitute the quality of interaction available in this cosmopolitan space of appearance. What is notable here is that once again

a dynamic can be discerned that combines a certain fragmentation (where the stress is on the distance between the image as given and the life itself) and a moment of reconciliation: when the tale of the life and the life itself, come together, within this cosmopolitan space of appearance. This might also be explored through narration: It is feasible to explore this cycle or circuit as a narrative economy, and certainly the account of identity and publicity that underpins this account can also be explored, as Arendt points out, in terms of narrative relations, where the life is most fully understood through its narration by another in conditions of appropriate publicity (see Bassett, 2007).

***Conclusion:***

If narrative is a map here is not the only one. Web 2.0, not as a normative, nor as a descriptive piece of industry rhetoric, but as a bunch of technologies, might be all about the multiple ways we have found to get around or to operate in totalities too vast to map (tags, folksonomies, search engines). And, if there is a unified cultural logic, or even a cultural form, to be outed in 2.0, it is beyond dis-orientation. It is also, however, beyond total fragmentation (schizophrenia). The kinds of living collaborations/multiple authorships we are discussing are as much about 'what is put together' / 'comes together', to makes a new kind of 'sense' as what does not come together, cannot be grasped. In sum, there is a dynamic of *reconciliation* evident in new media, which only becomes evident when we explore it in process, over time, rather than, for instance looking at it as Negroponte did, at its constituent parts.

And a cultural politics? 2.0, at least in so far as it was taken to usher in the new refreshes certain ideas about consumer activity (expressed this time in terms of participation rather than power/resistance) and therefore gives us a new romance of technology. However it also clarifies the power geometries of developing new architectures, re-focussing attention onto participation and the terms of participation. My sense of this diverges from Jenkins' since I read these geometries not as provoking consideration of integration, but rather as leading to the requirement to explore re-conciliation and the forms that this takes: whether this is configured as a *struggle* over the ownership of what is (jointly) made, over the identity – the life story - of those who are made in many spaces at once, or who are reflected or narrated through their works (and hence are human and non-human), or over the control of new spaces or times.

I am influenced here by Silverstone's/Arendt's sense of 'appropriate distance' as that which might underpin an ethical space of appearance within which the protagonist and narrator are, as I see it, reconciled in a useful way. Non-ethical systems would then be systems not only where reconciliation mis-recognizes its object, but also where narration as reconciliation is forced. And this form of narration goes beyond representation and its economy. A different form of techno-cultural materiality is invoked: The increasingly stridency of the demand that our database counterparts match up with our real life bodies, our credit records with our plane tickets, our passports with our stories, are all examples of moments when this kind of coercion is exercised, and offer an indication of the centrality and importance of exploring questions of power and control when investigating the cultural dynamics of these technological systems – which as Bleeker makes clear may change the order of participation.

The constant demand that we reconcile, that we get our identity straight, that we both fragment - to play the market, to work, to consume - and that we reconcile these identities on demand, that we *work* the centrifugal and centripetal qualities of contemporary networks, can be seen as a form of coercion as much as a form of freedom.

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# From Locative Information to Urban Knowledge

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*How does information generated and shared through locative media and mobile communication technologies turn into knowledge? This paper examines the emergence of knowledge on interactive urban maps focusing on the concept of* organisation.

Although spatial annotation systems gained recognition in recent years, a very short illumination might be useful. Spatial annotation systems are systems that allow us to associate messages (tags) with various points in geographical space via computers or mobile communication devices such as PDAs or mobile phones (see the websites for Google Earth or denCity[1]). Depending on the system used, the location of the message can be selected on a map by the user (Google Earth) or assigned by the system based on localization via GPS (STAMPS[2]) or mobile cell information (Shedlight[3]). The Hungarian system BlueSpot[4] uses a network of stationary hotspots to which the users connect via Bluetooth-enabled mobile phones.

Obviously, information generated and shared via mobile communication technologies is dynamic. Users react to other users and/or entire communities. They upload information (e.g. text messages or images) and choose destinations accordingly. Reflecting on the deficit on intuitive visualisation strategies for dynamic information, Ben Fry elaborated the principles of Organic Information Design.[5] Fry applied simple biological organisms' features to the creation of information visualisation systems. He translated traits like structure, appearance, adaptation, metabolism, homeostasis, growth, responsiveness, movement, and reproduction into spatial features including component distance and size, and the shapes formed by components. Fry's approach can be summarised as follows: we more intuitively recognise relations and perceive qualitative features of dynamic data if we associate the visualised information with 'behaviour'. Fry's Organic Information Design concept is general however, and does not reflect on the extent(s) to which different types of information profit from the suggested strategy. As will be shown below, the organism metaphore is particularly apt for locative information. Organic Information Design can represet almost almost any information so that it looks like an organism. What I seek to examine is ways of representing information that inherently organises itself in this fashion.

The tendency to introduce hierarchical organisational levels exists across the board in the natural sciences, social sciences, and humanities. The biological example breaks down the organism in the following way: a cell is made up of organelles and tissues are composed of many cells. Organs are made of tissue and perform specific functions as part of an organ system (for example the human digestive system). The next

[1] http://dencity.konzeptrezept.de

[2] http://craftsrv1.epfl.ch/research/stamps.

[2] http://mobiled.uiah.fi/?p=32.

[2] http://www.bluespot.hu

[3] Benjamin Fry, *Organic Information Design*, master's thesis submitted at the School of Architecture and Planning, Massachusetts Institute of Technology, 2000.

[4] Difference between weak and strong emergence see: David Chalmers, "Strong and Weak Emergence", in Philip Clayton and Paul Davies (eds.), *Re-Emergence of Emergence*, Oxford: Oxford University Press, 2006.

[5] cf.: David Chalmers, *Ibid*., Philip Clayton, *Mind and Emergence*, Oxford: Oxford University Press, 2006.

step is the organism itself. Many organisms/individuals constitute a society, which can also be referred to as *superorganism*.

If a phenomenon on a higher lever of the hierarchy arises unexpectedly from a lower level, we can describe this phenomenon as *emergent*. If the emergent phenomenon is not deducible even in principle from the lower level, we might consider it a case of *strong emergence*.[6] There are debates whether the *mind*[7], emerging from neuron activities, is the only case of strong emergence; or whether *life*[8] or *superindividual levels*[9] can be taken as cases of strong emergence.

Concepts of the superindividual level sometimes follow the concept of horizontal transfer. A popular example of the horizontal transfer between levels of organisation is the case of the ant and the ant colony. The ant colony itself is regarded as a living being when we attribute features to it like age, fitness, etc. These features that an individual ant exhibits. By making use of biological models in the social sciences, we can call a group of organisms/individuals a superorganism. In these cases the emphasis is on the analogies between the operational principles of the lower and higher levels: "Individual organisms are paradigmatic examples of both development and selection. They display ontogenetic processes of meiosis, mitosis, and cell differentiation and specialization; hence a collection of individuals may be seen as a superorganism if it is subject to a similar ontogeny."[10] Another approach will call the group of organisms a superorganism by transferring the feature of natural selection or the ability of adaptation from the lower to the higher level.[11]

Before we can attribute any behaviour to higher level phenomena, we must first identify these phenomena and what constitutes the higher level itself. This paper points out how a higher organisational level emerges from locative information[12] on interactive dynamic maps. The distribution of locative information on interactive urban maps does not exhibit a random pattern or pattern of geometric symmetries. If sufficient amounts of locative information are depicted on the dynamic map, we will see the emergence of patterns that resemble biological organizations. The emergence of these coherent patterns on a higher level is indicative of a new quality.[13]

The information layer in our case is composed of the messages/records of the spatial annotation system. On the map, the records are represented as speech bubbles, pins, or the like. Some maps show the message or image directly, while others only show a sign that reveals the message behind it by clicking on it. Other possible information apart from the message itself might be the author's name and date of upload. When we observe the map through a longer time period (or better: replay a fast-forward animation of saved data) the information's organisation on the map produces identifiable patterns that recurr in different variations. The identified distributional pattern might "look like" organisms.

> "By talking of what something 'looks like' ... what I am talking about is the collective result of an incredibly complex interaction between the buzzing confusion of visual stimuli, the optics of seeing, the neuro-physics of sensation, the cognitive systems that come into play, and the huge

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[6] Michael Polanyi, *The Tacit Dimension*, Garden City, NY: Doubleday Anchor Books, 1967. p. 49.

[7] cf.: Clayton, *Ibid.*

[8] Sandra D. Mitchel, "The Superorganism Metaphor: Then and Now" in Maasen, Mendelsohn, Weingart: *Sociology of Sciences - Yearbook 1994 - Biology as Society, Society as Bi ology: Metaphors.* Kluwer 1995. p. 234.

[9] Mitchel, *Ibid*. p. 235.

[10] Locative information here means information for that the spatial dimension matters. A certain piece of information is relevant at a certain location or in fact it can be interpreted mostly within the context of a given place and its neighbouring relationships in urban space. Concerning locative information see further: Viktor Bedö, "Maps as Tools of our Thinking", *Mobile Studies: Paradigms and Perspectives*, Kristóf Nyíri (ed.), Vienna: Passagen, 2007. p. 129.

[11] cf: Günter Tembrock, "Verhaltensentwicklung: Phasensprünge, Innovationen", in Ludwig Huber (ed.), *Wie das Neue in die Welt kommt.* Vienna: WUV, 2000. p. 132.

[12] Martin Kemp, *Seen/Unseen: Art, Science, and Intuition from Leonardo to the Hubble Telescope,* Oxford: Oxford University Press, 2006. p. 79.

[13] Kemp, *Ibid.* p. 44.

> baggage of experience, knowledge, assumption, context and directed interest that sets structured parameters on how we operate the processes of determining what something 'looks like'."[14]

Kemp introduces *structural intuition*, a principle by which artists and scientists extract order from the chaos of visual phenomena. Structural intuition is shaped by physiological and cognitive structures (reaching back to pre- or subverbal deep structures) on one hand. On the other hand it is also shaped by a gravitational pull towards visual convention that is the cultural component in human vision. As Kemp demonstrates by scientific discovery, the sphere between these two gravitational forces plays a key role in epistemological issues.

Interactive urban maps are new tools of navigation, communication, and, as I suggest here, a visual tool for generating knowledge on a community level. Let us consider the conditions for the acceptance of new visual tools by referring to the introduction of the telescope as described by Martin Kemp.[15]

Two critical issues regarding the acceptance of the telescope in Galileo's time were:

1) Critics claimed that the image was an artifact of the telescope, not the accurate depiction of outer truth.

2) "The second problem was that strange things were becoming visible for which no ready made frame of interpretative seeing existed. ... [P]articularly when they did not fit neatly into the modes of seeing and representation that had been established for unaided vision."[16]

The claim articulated in the first point can be addressed in relation to interactive urban maps. According to the classical cartographic paradigm, a map is an ontologically fixed representation of a terrain or process. Nowadays interactive urban maps are capable of depicting geographical space as well as dynamic real-time information from both physical and virtual space. The feedback between map and user is permanent; the user shapes space through his or her movement, action, search strategies, etc. These changes can immediately be displayed on the map. As Rob Kitchin suggests in relation to the new cartographic paradigm: the act of mapping is the act of spacing.[17] Maps not only depict space, but form and constitute space themselves.

Regarding the second issue, we have to inspect what modes of seeing and representation direct the identification of coherent patterns on the map, and what background knowledge enables interpretations. The latter is provided largely by the forthcoming outcomes of the mobile communications studies. Yet from possessing knowledge about single messages or the communication habits of individuals of smaller communities, we might not be able to anticipate the patterns emerging on a larger level from the countless messages. Thus the findings about the individual level need to be supplemented when one examines mobile communication on the higher scale of urban space.

What we can anticipate is that after reaching the critical volume,[18] these community level patterns will have effects on the individual level: users will navigate using these patterns, make decisions based on these patterns, and contribute to them by posting their own information. The pattern emerging on the dynamic urban maps become urban knowledge based on locative information. The primal representation of urban knowledge will be on the map, the method of identifying and interpreting the patterns is looking at the map (looking in the sense as introduced above concerning Kemp). It is important to note that there are no cues when inspecting the emerging patterns on the map and there are no masters telling us what to see as we deal with a new instrument showing a new quality. We do not The metaphor of organism/organisation in this case does not transfer meaning, in the, but a way of seeing, that helps ideintifying, *discovering* the patterns of locative urban knowledge.

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[14] Kemp, *Ibid,* p. 45.

[15] Cf. Mapping Anthropotechnical Spaces Conference, Freie Universtiät Berlin, February 21-23 2007.

[16] The use of spatial annotation and other location avare social software has not reached the critical volume therefore we can not even anticipate by now how many messages are going to constitute a coherent pattern. Will it be fifty, four hundred, or two thousand?

**Klára Benda:**

**A theoretical framework for institutions in networked education**

The focus of the paper is the problem of social institutions in the networked setting, which I approach through the example of networked education. I rely on Anthony Giddens' structuration theory and the structurational interpretation of technology by Wanda Orlikowski to formulate a social theoretical framework for the conceptualization of networked education.
Networked education is also referred to as the virtual school (i.e. the virtual university), a term I find misleading from the perspective of contemporary social theory, which points out that social practices as such are essentially virtual, and face-to-face education is no exception from this. In contrast to virtual, the term 'networked' as in 'networked learning' emphasises the relational character of online learning, where information and communication technologies are promoting connections between the learner and other learners, learners and tutors, or between a learning community and learning resources. Networked education is education available over the digital network rather than in face-to-face settings, and it is distinguished from networked learning by its institutional, though not necessarily formal character, as it is typically delivered by educational institutions. Networked education is neither exclusively distance or blended education, nor is it the informal, extracurricular extension of regular schools; it is understood to incorporate any kind of networked educational practices irrespective of the primary profile of the educational institution behind them.
Despite the hype of discourse about educational technology and the opportunities of learning over the Internet, networked education is today neither widespread nor sufficiently understood or accepted. I attribute this state of affairs to the incapacity of current discourses to give an account of institutions in the social use of technology. I argue that education over the network is possible as well as desirable, mainly in those cases when access to education is otherwise hindered, and the goal of my paper is to initiate a socially informed shift in perspective concerning our thinking about networked technology in education. I understand this shift as aimed at giving an account of the institutional aspects inherent in education.
In the paper, I discuss three pervasive trends in the approaches to networked learning, each representing its own perspective from the respective vantage points of technology, pedagogical psychologies and emergent communities. These discourses are capable of fashioning the development and conceptualisations of networked technologies for the purposes of learning, but fail to give a reflexive account of the institutional aspects of education. Socially situated uses of technology ensuing from these approaches may become routinised in institutions, but the discourses as such do not allow planning reflexively for these institutional uses, which are thus ad hoc or unpredictable. I claim that a socially informed theoretical framework of networked institutions would allow planning the institutional uses of networked technology in view of the desired educational processes.
In social theory, institution refers to those standardised modes of behaviour which are necessary for the constitution of a social system. In the sociology of knowledge, for example, institutions are described as reciprocal typifications of habitualized actions, which control human conduct by setting up predefined patterns, and allow the coordination of the actions of social actors.
Thus, in thinking about the opportunities of networked institutions, we are actually faced with one of the central questions of social theory: What is society? In a different formulation, we are interested in what makes possible the coordination of social actors in the here and now or over larger spans of space and time within the complex whole that appears to us as an integrated social system. We may look for the answer to the question in the works of Durkheim, Weber or Parsons, but here I suggest a more contemporary account by Giddens as the framework for an analysis of networked educational institutions. While there will be no space for a thorough justification of this choice in the paper, the social constructionist starting point as well as its common sense nature and clear formulation may be pointed out in favour of Giddens' theory.

In my paper, I present the outlines of the theory of structuration which I find necessary for a description of educational institutions in the networked context. In his attempt to connect action (the human agent, the subject) and social structure, Giddens draws attention to several dualisms inherent in the big theories, biased in favour of one or other of the pairs of subject vs. object, voluntarism vs. determinism or synchrony vs. diachrony. Giddens attempts to overcome these dualisms by what he calls the duality of the structure, which is described as both the medium and the outcome of the reproduction of social practices. Recurrent social practices constitute social systems.

Structure, according to Giddens is not available to actors as such; it is only properties of structure which are available in the instantiations of structure in interactions. Human actions are both constrained and enabled by these properties of the structure, which is in turn reproduced in the repetition of the acts of individual agents in a continuous flow of conduct. These properties of structure are rules and resources, which from the point of view of strategic action appear as stocks of knowledge and resources employed in the constitution of interaction, and from the institutional point of view, represent rules and resources as institutional features of social systems. While rules are patterns of social interactions, which appear as stocks of knowledge from the perspective of the actors, resources are whatever is created by human action.

Orlikowski starts off from Giddens' theory of structuration and investigates the use of technology in organizations. While she does this, she also fills up the discursive space of an important shortcoming of the original theory related to artefacts, to which there is no specific reference in Giddens' writing. Technology is conceptualised in relation to the properties of the structure, as pertaining to rules and resources. Following Giddens, she draws up the duality between technology as product of human action – an outcome of such human action as design and development and appropriation – and technology as a medium of human action, which conditions, i.e. facilitates and constrains human action through the provision of rules and resources.

In my own analysis, I draw heavily on Orlikowski's insights about technology as a structural property of social systems both enabling and constraining social interactions, but I propose that instead of technology, the social context of technology use should be placed at the centre of our attention. This I claim is useful for several reasons:

Firstly, this allows avoiding the pitfall of treating technology as unitary, which hides from us the various forms technology may appear in, from technological artefacts to complex technological infrastructures. I interpret networked applications as infrastructure from the point of view of institutional analysis and as environment from the point of view of the analysis of strategic conduct by human actors.

Second, this allows us to keep in our focus the recurrent social practices responsible for the process of structuration.

In my own analysis I argue that institutional features transcend technology in important ways and thus our focus of interest should not be the use of (networked) technology and technology use, but the social systems of networked education, which are relying on diverse networked applications for their existence. I illustrate this point with examples of institutional moments that may enter into the constitution of education and their possible embedding in the networked infrastructure.

In final conclusion I argue that rules and resources entering into structuration processes in networked education are far from exclusively technological in nature; written rules and regulations – including national legislation – and the related arsenal of very real sanctions, will often have precedence over technologies in the constitution of the system of networked education.

**András Benedek**

## New Learning Paradigm: Interactivity and Mobility beyond the Classroom

A recurring element of the criticism of educational systems is the criticism of the procedures of teaching-learning. A noteworthy trend of the critical approaches concentrating on the pedagogical issues of the changing relationships of technical development and social organization evaluates the situation by means of the tools applied in education, and seems to discover the point in the application of new technologies. Its major reason is the definite system of formal education connected to institutional education and determined by cultural traditions. This social subsystem can be characterized by slow development ─ which is closely related to the great sizes of the system and the considerable personal and material resource needs of the maintenance-operation ─ due to the conservative "protective" customs of historical societies too.

Illustrations are provided by the classroom descriptions of the past three-four decades, in which the overhead projector as a constant tool of visual demonstration is presented besides the blackboard looking back a past of several hundred years. Although, great pedagogues are still attracted by the magic of the blackboard, a good example of "renewing by preserving" is provided by the symbiosis of the overhead projector and the blackboard forced-to-develop ─ often magnetic, foldable, provided with a special surface. A later phase of the development is the appearance and spread of the intelligent "active board", as the new focal point of classrooms. It is completed ─ today mainly only in principle ─ by the LCD monitor which the learners can use for taking notes, or storing essential parts of a preprepared presentation displayed on the active board.

Information-communication tools – computers, projectors and their networked operation – available today, that can be used for teaching purposes (as well) can indeed make traditional classroom environments colourful. However, the debate sparked off recently over the widespread of the digital board cannot distract our attention from the fact that the teaching-learning processes of the microworld of classrooms have already left the traditional world of formal education determined by the school and the teachers. That is why, this presentation undertakes the task of examining new teaching and learning modes in the era of the spread of information-communication tools. When examining the changes occurring in the present at the level of popular effects, it should be mentioned that the first appearance of personal computers – in the second half of the 1970s – meant the beginning of a new era in educational technology. Summarizing, it can be evaluated as a pedagogical landmark that human-machine interactive communication did appear in teaching-learning.

No exaggeration that the physical and intellectual transformation of the environement of education – and it is of at least of equal importance – and that of the environment of work had taken place by the turn of the millenium: *personal computers had* irrevocably *entered the classrooms as the tools of teaching and learning* and appeared in the homes as well. Drawing a parallel in time, it is also noteworthy that the theoretical possibilities of the formation of graphic user surface had already been known at the end of the 1960s, and had extensively been researched. It is well illustrated by the formation of the technical background of *icon use* ever strongly forming the change of present and future learning, the process of quick and efficient information transfer. The 'mouse' has created an unprecedented new form of human-computer relationship. The „technical" solution modest-looking at the beginning of its history of four decades has fundamentally changed human-machine communication, its impact far-reaches the computer monitor. This symbolic language is used by today's electronic tools – from household devices to means of tranport – for communication with the users, and the complexity of the messages is increasing.

But what makes it so important to standardize messages, symbols that have always been personal within interactivity? The answer is related to the strengthening of another tendency which draws our atttention to the formation of another paradigm in pedagogy. This is the spread of mobile communication sparking off technological and social changes exceeding the pace of all the foregoing technological transfers. The pace of the technological transfer brings numerous quality changes into action, and among them social learning is one of the characteristic phenomena. That is, I claim that learning has never been a substantial potentiality in such a degree and with such an intensity in the history of mankind. The new "environment" making possible the development of network structures, already handing over the transfer of sound and picture information to the moving man makes the individual in principle anywhere – at home, in the street, on the train, on top of a mountain or a continent away – capable of fast information acqusition and using icons suiting the sizes of the monitor for presenting complex instructions, information packages.

The quickening of the information-communication changes is vividly illustrated by the appearance and spread of mobile phones. The new small size tool is aptly compared to the relatively small human brain by *Paul Levinson* referring to the possibilities of communication[1] and not the intelligentsia. This mobile communication tool started to spread only at the beginning of the 1990s at a sweeping pace[2] So far there has not yet been a technical tool of such significance that spread so widely in such a short time. The wide spread of the wheel, the screw, the steam engine, and even the car, furthermore the television or the Internet can be measured in generations. Unlike those processes, the mobile phone conquered the world in a little bit over a decade. The new digital mobile tools not only integrate all the existing communication functions but they are not linked to such huge social institutions as the home-school-workplace in its system of regulations and norms. This way *the other pedagogical turning point* being realized these days is *the formation of the spatial independence in the communication possibilities of mankind.*

In a relatively short period in our history we have come from the appearance of *human-machine interactive communication in teaching-learning to the formation of spatial independence in the communication possibilities of mankind* especially fast from the viewpoint of the development of pedagogy. These two significant turning points posing newer and newer challenges from a pedagogical point of view figuratively symbolize such thresholds one of which we have already stepped over, and at the other which we are hesitating faced with the increasingly complicated transformation of the world of education. The strategic thinking about education of the decades to come should fundamentally be influenced by the recognition that while traditional educational institutions primarily focused (and are still focusing) on knowledge transfer, *up-to-date learning possibilities and the lifelong approach to learning focus on the development of individual abilities, as well as the development of the person's learning abilities.*

These efforts forming at the level of institutional provision call the attention to the fact that the "space" is increasingly widening for the teacher and for the learner alike, in which *arousal of interest, transfer-acquisition of knowledge, demonstration-experience-experiment-research-practice, conclusion, and systematization* can be fitted into some didactical system and can be organized according to fixed algorithms. The change of course influences the teacher as well, since the harmony of the use of different tools (traditionally the curriculum-learning material-textbook, the possibility of acquiring knowledge in a novel way, in a "new environment") should be found and formed – especially if it is about school education – in space. But the learner is also in a special situation, on the one hand he is

[1] Paul Levinson: Cellphone: *The Story of the World's Most Mobile Medium and How It Has Transformed Everything!* New York, Palgrave Macmillan, 2004.

[2] The transportable, wireless phone first appeared as a fantastic communication tool in the American Star Trek TV series in 1966. The mobile phone ─ at that time still heavy and rather expensive (US$ 400) ─ was first realized by AT and T, and Motorola after nearly two decades and at a cost of almost US$ 100 million. The increase of the number of the subscribers in the US between 1985 and 2002 – from 350,000 to 150 million, which is an increase of 8,800 times in 17 years – exceeded the pace of spread of all the previous technical tools (See Levinson l.c. p. 32.)

open to new information, on the other hand he needs the possibility of orientation and development due to the nature of development.

The characteristic of the future learning paradigm evolving under the influence of just the mobile information technical tools is the fact that a complex tailor-made mixture of interactivity and multimedia can be formed. When considering the expectable changes of the technological environment of education, our traditional notion of school and the stereotype of classroom teaching-learning is fundamentally changed in the years to come by the possibility that broadband data transfer is capable of virtualizing demonstration tools – overhead projector, video projector – without physical presence, or rather capable of making them real, real-time-like. Making a striking comparison it might be said that "in the future classroom" great interactive surfaces increasingly pleasant for the eyes can be capable of multimedia aided knowledge transfer[3]. It is fair to question whether *such a space is indeed necessary in a physical sense, whether the virtual possibilities can create the tailor made pedagogical solutions of all these functions mobilized in space and time.*

Learning, and the space in which it occurrs can become increasingly tailor made for the users (learners) by means of the mobile communication tools. The restrictions characteristic of formal learning and leading to numerous inhibitions do not predominate in this virtual learning space. A serious answer is being offered for the criticism saying that individualized learning because of the lack of community existence leads to social confinement, according to which one of the main directions of the development of these systems is just that the participants form informal groups of significant social cohesion by means of netmeeting software systems on the basis of interests and the unity of interests. This implies a new competition, new challenges for the traditional school system. It is fair to question *until what age it is the primary goal of the school to* keep the young people together, *to look after them, to discipline them.*

When approaching from the direction of the changing image of mankind it can be supposed with good reason that a new generation consisting of committed to online education users is forming (growing up). This generation moves more easily than the previous generations in information-communication space and is increasingly becoming better informed and organized. By this knowledge people provide more information and support to each other than they can get from different institutions. That is why, and it is relatively easy to predict that in the future *the role of learners' communities will increase*. These new communities are primarily characterized by identical sphere of interests, where learners interact with each other, learn together and create shared supplies of knowledge sources. By the way this developing practice is not in contradiction with the possibilities of learning inherent in the renewing organizational forms of higher education. The classical roles (teacher-student) can hardly be realized in this dynamized "learning space", since *potentially any downloader becomes an uploader as well* due to the architecture of the net based on changed, collective knowledge share and content generation, and the simple user surface.

From a pedagogical point of view the efficiency of mobile communication is limited in the above described virtual reality, when thinking of classical classroom-lesson structures. However, images and the tools of mobile communication can provide more life-like solutions than merely transferring knowledge in written text format, as texts always deliver decontextualized information. Although person-to-person communication in classroom education is meant to develop the pupils' practical skill of contextualizing — not confronting formal and non-formal learning —, the fixed context and the fixed site are indeed connected, but networked computers and mobile communication tools are capable of creating a common virtual learning space independent of the limitations of the classroom.

In this learning space the individual does not necessarily seek his own way solitarily since new content and methodological possibilities of learning are also potentially created by network connections. In

[3] A multimedia presantation - the opening pictures of the De Vinci Code released by Columbia Pictures in 2006 - is a good illustration what picture effects can be used in the world of lecture rooms.

*Stephen Downes*' recently outlined similarity the learning network is an ecosystem in which individuals are not grouped or graded any way, they act freely, and their natures are determined by interaction besides their inert characteristics as well.[4] The *learning objects* do not appear in an ordered way but randomly, in a disordered way. They do not act in classrooms and schools, but in those environments where the learners turn up during their everyday routines: at home and at the workplace. In accordance with this interpretation of learning objects they are not only texts, pictures, tests, but we ourselves are learning objects with our blog comments, papers, speeches, thoughts expressed in real-time conversations.

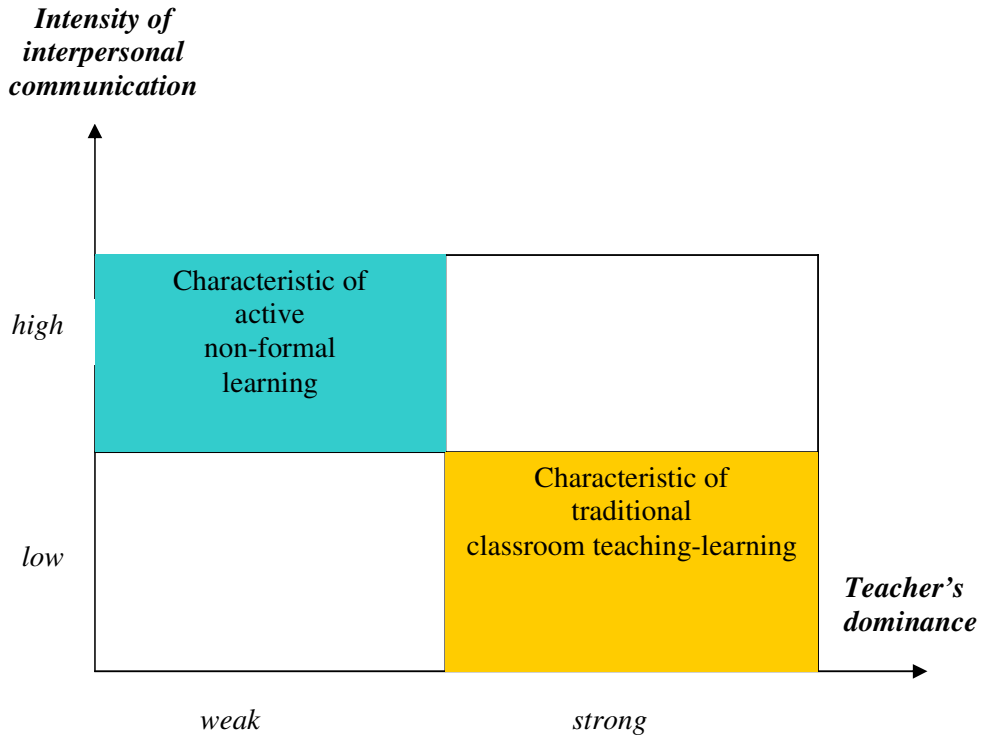
The connection of reality and the future of such character is well illustrated by the success story of "Mindentudás Egyeteme" – ENCOMPASS[5]. The undertaking of the propagation of scientific knowledge in Hungary was started in September 2002 at the initiative of the Hungarian Academy of Sciences and MATÁV. The idea came from French art historian *Yves Michaud* and the program *l'Université de tous les savoirs* realized by him combining the most up-to-date knowledge with the most advanced information and communication technologies.

The ground-gaining of informal learning might present the most considerable challenge of traditional pedagogical thinking. The tendency of gaining ground of this form of learning as against institutionalized education is common in the developed countries. It is so even if this form of learning is not characterized with diplomas and qualifications, though in this case the aim and the content of learning are also of importance. Mobile learning is spreading in initial education and later education as well in learners', students' lives. Presumably one of the fundamental issues of the near future for educational theorists and developers is the development of learning and that of the already directly related teacher competencies.

When investigating mobile communication at the level of the relationship of substance of the paradigm shift in pedagogy, the fundamental relationships are shown in the following diagram.

[4] Stephen Downes: *Public Policy and Online Learning*. Association for Computing Machinery online August 19, 2003. Publications in Trade Journals. (http://www.downes.ca/post/60)

[5] A television and radio series.




This paradigm shift in pedagogy especially presses the renewal of conventionalized pedagogical special methodology. Empirical investigations suggest that the new generations, broadly meaning the modern individum, can indeed get used to the new environment – partly virtual, and operating in divided time in a significant part, and turn the organic learning environment provided by the mobile communication techniques into instrumental knowledge. In accordance with the above said the possible models are to be found between two poles, depending on what significance is attached to the dominance of individualization, or respectively that of socialization. Simplifying, it might be stated that the alternative of the pedagogical paradigm is the following: *„classroom"* models do not leave the traditional educational frameworks, and the process of teaching-learning is based on the primateship of the teacher, pedagogical programmes and the determinant institutional function of the school. It is definitely opposed by the „*Forum*": placing social learning *in the interactive communication space by the mobile information-communication tools*.

**Convergence as Religion: Is There Morale in Telecommunications?**

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This paper spans between understanding convergence as 'religion' and considering 'morale' in advanced telecommunications. Therefore, it makes use of 'invisibility' and 'interaction' as guiding categories. The starting point for this approach is pop star Prince's song 'Sign O' The Times' (1987), including the following lines: 'In France a skinny man / Died of a big disease with a little name / By chance his girlfriend came across a needle / And soon she did the same'. Prince concisely pointed to engrained fears of the time, marking them as 'signs'. I propose that technological convergence is the 'Sign O' The Times' of the early twenty-first century.

**Telecommunications convergence: Remedy or poison?**

The term 'convergence' has several different meanings, depending on its context. According to Merriam-Webster, these range from 'moving toward union or uniformity' (as in coordinated movements) and 'independent development of similar characters' (as of unrelated structures with similar habits or environments) to 'the merging of distinct technologies, industries, or devices into a unified whole'. Built from 'to converge' and etymologically derived from Late Latin *convergere* (viz., *com-* 'together' and *vergere* 'to bend') meaning 'to incline together' (Harper, 2001), the term is applied in diverse contexts such as mass media, economics or mathematics. Due to interest in technological unification, I understand convergence as 'approximation', 'rapprochement' or even 'harmonization' (Germ. *Annäherung*). Following the 'needle' in Prince's lyrics, I argue that the 'converged medium' appears as *pharmakon* 'which acts as both remedy and poison' (Derrida, 1981: 70). Pharmakon represents an eminent paradox in the discourse on media because it 'constitutes the medium in which opposites are opposed' (Derrida, 1981: 127). Even though it is contested whether Derrida's approach to this fundamental figure is appropriate (Rinella, 2007), it reveals the 'two possible meanings' of pharmakon. Because both meanings are found in convergence, I specifically use this figure for its understanding.

Convergence is understood as the current mode of merging and enhancing technological capabilities. In seemingly 'new' phenomena, it is always worthwhile going down memory lane. For instance, William F. Ogburn who discussed in 1922 that 'technical change comes quicker [than other change], and is more drastic and cumulative' (Gilfillan, 1952: 194). There seems to be an almost 'natural' process of convergence in telecommunications and computing, driven by business communication (Inman, 1975). Concerning my interest in the 'disappearing computer', the following quote is rather interesting: 'The smallness of microcircuits has also become a crucial factor for their pervasiveness; indeed a microcomputer could be a desktop device.' (Rada, 1980: 437) Therefore, it was reasoned early that the 'pervasiveness of microelectronics has transformed electronics into a *convergence* industry' (ibid.). Finally, concepts of change and convergence reveal their proximity to paradigmatic *emergence*, 'divided between […] the advances and effects of communications technology [seen both] as a universal panacea and as bringing universal ills' (More and Laird, 1985: 63) – speaking of convergence as remedy and poison. In general, converged media lead to the emergence of new practices, whether good or bad (More and Laird, 1985: 70-2; Glotz et al, 2005).

Even though convergence is a much-used term in mobile communication, it seems difficult to define and is used in several different contexts. Whereas *device convergence* refers to integrated cameras, the ability to run mobile Java applications or PDA/organiser functionalities, *service convergence* refers to multimedia capabilities, the mobile Internet, data services and 'converged' services in general. An example of the latter is the so-called 'quadruple play', the bundle of pay television, home telephone, internet connection and mobile phone, now offered by an increasing number of providers. These integrated, one-stop, one bill bundles are meant to avoid churn. But the even bigger advantage is the future intertwinedness of services: the mobile phone would truly become a 'remote control' for life, say, for remotely recording a movie that can be watched later on the TV set at home. Part of the extension of the previous 'triple play' is the 'fixed-mobile convergence', the emerging trend of providing telecommunication applications and services irrespective of the device or access network. This marks a transi-

tion from former telephony and data services to more service-oriented, integrated communication, collaboration and multimedia applications with the Internet Protocol as underlying convergence medium. Even though the concept of 'fixed-mobile convergence' existed since the 1990s, it has only recently taken off. However, it is said that '[c]omplete convergence will be a long process' (Anonymous, 2005: 15), depending on reliable services, flexible deployment and mature business models. In review, it should become clear that *telecommunications convergence* is rather about merged media in the data stream (*service*) than about the *device* taking on multiple tasks.

Whilst convergence is a hype in telecommunications (Fowler, 2002), it is also a challenge for mobile operators as they will be mainly involved in the deployment of these services (Schweizer, 2006: 147-8). To use the chosen *pharmakon* metaphor, one could say that there is a certain threat of 'overdose' in convergence. This seems especially severe because convergence obviously refers to a *process* (both industry and user-driven) and not to an *end point*. In so-called economic *deconstruction* new distinctive business models emerge and transform the rules of competition. Deconstruction – as seen in the transition from triple to quadruple play – is considered 'as "a melting of the glue that binds" the value chain together' (Schweizer, 2006: 144), leading to a paradox because convergence and deconstruction co-exist in the process. When in 2002 a T-Mobile senior executive stated that '[t]he customer of the future will no longer regard the mobile phone as a telephone with useful additional functions, but as a data terminal that can also be used for telephoning' (Schweizer, 2006: 152), he was neither entirely correct nor wrong. There is no 'one size fits all' for users and usage in this process of convergence but rather a cornucopia of needs and models, trying to provide a segmented balance of features (which necessarily have to include ease of use, reliability and security).

One example of a possible 'disappearance' is the convergence of the mobile phone and payment technologies. Mobile payment is a hyped application often mentioned in recent years. Earlier this year, a survey by credit card association Visa 'found that 57% of respondents are interested in getting a cell phone with a payment application.' (Anonymous, 2007b, 1) In a planned mobile payment trial, involving Germany's national railway and mobile operator Vodafone D2, it was announced that Vodafone 'will not be the one billing the subscribers for the transit service' because it does not want 'customers to get steamed about their mobile-service bills showing sharp increases from transit fares.' (Anonymous, 2007a) This surprising procedure points to restrictions of full convergence. In addition, what could be the reason for the very slow adoption of these services by users? Is it the combination of two rather sensible 'media', including money as well as personal forms of social contact? This is leading back to the current device as 'cultural artefact' because 'the most visible and tangible manifestation of convergence in the telecommunications industry is in the area of end-user devices' (Flaherty, 2005: 46). Particularly in the mobile market, there still prevails a recognisable device. However, convergence goes further than that, including pervasive computing, ambient intelligence and nanotechnology, and leading to the 'disappearing computer'. In this 'hidden revolution', it might well apply that '[w]hat you don't see will need careful watching' (Cukier, 2007: 13).

## From visibility to invisibility to interaction

Whilst these first steps in convergence are still 'visible', I am mostly interested in the disappearance of converged technologies, leading to pervasive computing and nanotechnology. I refrain from delving into pervasive computing as it is too closely connected to converged telecommunications. However, pervasiveness is the next major step towards the true disappearance of the computer, becoming not only literally invisible (Bertschi, 2007).

The U.S. 'National Nanotechnology Initiative' and the European Commission both drive and support programs on advanced technological convergence. Whereas the former labelled its initiative 'NBIC' convergence (Nano-Bio-Info-Cogno), the latter commissioned a report bearing the identical shortcuts on its title (Roco and Bainbridge, 2002; Nordmann, 2004). Both agencies sensed a need to analyse the emergence of a new theme in research policy, the convergence of nano-, bio- and information technology as well as cognitive science. This convergence is 'based on *material unity at the nanoscale*' (Roco

and Bainbridge, 2002: 2) and is considered to have implications on science and socio-economic development as well as on society as a whole. Depending on the approach to converging technologies (U.S. vs. EU), these are meant to reconstruct human nature. Not included in these initiatives at the nanoscale seems to be the 'C' of 'Information and Communication Technology' (ICT). It is yet to reveal why? (Hassan, 2000) Ever since the term was coined, NBIC convergence was defined as a transformational concept. Again, the advantages and disadvantages are closely connected, reminding of *pharmakon*. It is said that these prospective sensory-based systems may 'facilitat[e] new modes of experiencing the environment and may change the way people communicate information, knowledge, ideas, concepts, sensations, feelings and experience through new communication tools' (Bibel, 2004: 25) – for good or bad. These 'new', increasingly invisible modes inevitably led to calls for governance and regulation.

The 'visual' and an 'epistemology of seeing' are 'notable aspect[s] of our culture'. They place visibility in between the two domains of *perception* and *power*, and establish the *symbolic* – or simply the 'sign' (of the times) – as the medium between these domains (Brighenti, 2007: 324). How 'visible' technology interferes and is social at the same time is seen in anecdotal evidence from mobile phone usage: In Madrid and Paris, suburban youngsters use their phones to listen to music together in parks or squares and, in a more provocative way, whilst they are on a train or bus. This is used as a way of demonstrating how they dominate space and is called 'incivilité' (incivility) in France ('mobile-society' mailing list, 12 March 2007). As a social process, '[t]he symbolic dimension of the visible is [still] central in media technologies.' It was Georg Simmel who pointed to 'reciprocal visibility' as 'the most fundamental type of human interaction.' (Brighenti, 2007: 325) Based on convergence the new power might be the invisible rather than the visible, questioning the 'morality of [not!] seeing' (Brighenti, 2007: 329). As '[v]isibility curdles into representations' (Brighenti, 2007: 333) and, therefore, interaction (Frisby, 1990) it would be worthwhile to assess interaction in convergence-induced invisibility.

In line with Simmel's interaction and Emile Durkheim as well as Max Weber, it was stated that '[v]isible and invisible social action depends on which subjects act in which places.' (Brighenti, 2007: 335) Considering 'inter-action', it seems questionable whether we will be able to keep a strong distinction between human subjects and non-living objects; a direction already given by actor-network theory (Latour, 2002: 248; Vandenberghe, 2002). From interaction on to actor-network theory the mobility and pervasiveness of abstract surveillance increases – *virtual* became *actual* becomes *virtual* control – and leads to questions about morale. When computers become invisible, the observed has no awareness of the surveillance and would, according to Simmel's stance, 'not even [be] fully human.' (Brighenti, 2007: 337)

**Religion and morale in telecommunications convergence**

The term 'religion' (*religio*) is even more contended than *pharmakon*. In between convergence and interaction I sense a 'viral spread' ('HIV/Aids' in Prince's lyrics), addictive like *pharmakon* (viz., narcotic drugs) or possibly religion. Understanding telecommunications convergence as a religion is a first step in reconfiguring the perception of truly 'mobile media'. The concept of religion usually refers to the 'conduct indicating a belief in a divine power'. Whereas Cicero ascribed it to Latin *relegare* for 'go through again, read again' (viz., *deconstruction*), modern etymology 'connects it with *religare* "to bind fast" […], via notion of "place an obligation on".' The modern meaning links religion to the 'recognition of, obedience to, and worship of a higher, *unseen power*' (Harper, 2001; my italics). A specific meaning ascribed by Immanuel Kant is that of religion as 'moral action' which commands changes in human behaviour, a morality necessary for controlling and regulating human beings. In addition, religion includes those beliefs and practices by which we designate and seek to handle profound problems of 'meaning'.

Even such a brief and incomplete account indicates that the term offers a reasonable description for recent telecommunications convergence and advanced technological convergence in particular. The notion of 'morale' assumingly bears the most potential. Derived from French *morale* for 'morality,

good conduct', the term refers to 'moral principles or practice' (Harper, 2001). Distinguished from the term 'moral' meaning 'of or pertaining to character or temperament' (including manners and ethics), morale refers to the concept of morality and guides moral conduct. In the present context it is mainly understood as a logic or condition, with 'manners' and 'privacy' as good examples (Glotz et al, 2005). In his distinct diction, it is Bruno Latour (2002: 247) who stated that '[t]o become moral and human once again […], we must bind back the hound of technology to its cage.' The question whether there is morale in telecommunications is closely connected to the relation between Georg Simmel's concept of interaction and the hyped notion of the (emergence and) convergence of technological 'objects'. Convergence, it was inherently argued, cannot replace interaction; it makes it more intense and dislocates known boundaries. It is simply a 'new', adapted morale that arises in this process (Latour, 2002).

Next to interaction, the second most interesting aspect about mobile technology would be its disappearance, either because of decreasing size or because the user gets so accustomed to the device that it is just taken for granted. I consider these to be major steps towards an understanding of the 'engineered society'. The technological convergence following telecommunications convergence vaguely reminds of 'social engineering'. Technological convergence (in conjunction with human interaction) is a 'symbolic sign' of this development and leads to a better understanding of the resulting society.

At the end, telecommunications convergence, like anything else in mobile communication, has to be about *communication*. Convergence will prove successful if the need for interaction is fulfilled. This is considered the religious aspect of yet visible telecommunications convergence. Still, one question remains, being 'what is so important about convergence?' (Valdar, 2006) This unanswered question leads again to the industry *and* the user, to the remedy *and* the poison, to the visible *and* the invisible, to communications utopia *and* communications dystopia. The metaphorical approach presented in this paper is able to address novel types of interaction and to participate in explaining new converged realities. What we will have to expect is still to be revealed.

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Bodó Balázs: Underground commons, illegal archivists – the secret life of intellectual properties

In the last few years we have witnessed the expiration of our early ideas on how digital media – mostly due to its egalitarian, hard–to–control nature– will democratize political discourse, open up democratic political processes, and act as a free and unrestrained space for discussion. We had to realize that although it is quite difficult to control the digital sphere, it is far from impossible. There are constant efforts from various forces to shape what can be communicated, how and by whom, as there are constant efforts made to evade such a control. In the following pages I will try to sketch the new paradigm of control and the underworld it creates.

After the peaceful transition of the Central and Eastern European countries free speech seems to be less of an issue for the West[1]. Though there might be and in fact there are significant differences between Western countries on what is considered to be acceptable and protected speech[2], the freedom of the press and freedom of speech are constitutionally protected rights in each and every of them. The public sphere of the digital medium thus does not seem to suffer from the problems of the publics created by earlier communication technologies, that is from the problems of censorship and the efforts of the state to create and maintain total information hegemony. While this might be the case, it does not mean that the digital public is off the regulatory hook. Some old and powerful players have re–emerged in the control–game with the intention to re–formulate some of their centuries-old claims more powerfully than ever before, trying to impose what I would like to argue is hard to read as anything else but a set of new limitations on public discourse cloaked in the property rights of cultural goods.

Due to the rapid global standardization of Intellectual Property regulations more or less everything that was created by the last three human generations on Earth is now private property. Up until very recently the consequences of this development could stay out of sight. When the consumption and the everyday interpretation of cultural goods happens in separate media, the question "who owns culture?"[3] should not concern most of us.[4] Up until recent times print and broadcast media distributed the cultural goods, news and political information to us, but the interpretation, the everyday use of this information happened through interpersonal communal channels. As most of the interpretive communities simply did not have access to the one-to-many channels, they had to exist outside of these channels. What they got in return was the relative safety of being invisible to those who control the broadcast channels and the content pushed through them.

The digital communication networks have put an end to this separation. They shed a light not only on what is happening in these few-to-few communication spaces, but also on to what extent these discourses use and reuse the fragments of the existing audiovisual texts. Remix culture is nothing less than an interpretive process of the pre-existing and privately owned textual universe. The stories once told at the water–cooler turned into a series of endlessly remixed and re-contextualized audiovisual quotations.

We have to recognize that this interpretive process was the main engine behind the bottom–up digitization process of cultural goods in non-digital forms. The overwhelming majority of what exists today in the digital is there because someone needed it at some point in digital form and had the technical possibility to digitize it. With the proliferation of cheap broadband connections and p2p technologies it also quickly become visible what is inside in the separated, private digital libraries, movie and music collections, what is being traded in the back rooms of cultural institutions, in the

[1] The OpenNet Initiative (http://opennet.org) at the Harvard University Berkman Center tracks the level of control and censorship in countries around the world.
[2] See for example the controversy around the sales of Nazi memorabilia on Yahoo marketplace in France.
[3] See: Brown, M F: Who Owns Native Culture? Harvard University Press, 2003
[4] Though it does arise to a certain extent. See: Coombe R J, The Cultural Life of Intellectual Properties, Duke Univ. Press, 1998

local sections of local bookstores, what is on the pages of zines and fan–fiction magazines[5], what kind of films are screened for friends in the privacy of the home[6], what kind of music they listen together[7] – in other words the discourse on culture and how it is conducted has become visible.

This sudden process created enormous tensions in the structure of the emerging digital publics. On the one hand the advantages of this digital sphere are obvious: in 1999 Napster has created a music library unparalleled in depth, freshness and speed ever since[8]. In the era of post–Napster technologies and sharing communities, bottom–up collaborative music, film and text archives have proliferated[9], offering collections that are by orders of magnitude larger and more comprehensive to interpretive communities--who are at the very same time liberated themselves from being bound by the necessity of geographic proximity. These archives serve as the foundation to the plethora of activities that define digital culture at the moment: the translation of foreign language cultural goods[10], the playful re–interpretation of art history,[11] or the development of services that index every uttered word in every possible movie using the subtitles fans have created[12] – just to name a few.

The biggest obstacle in this process is the property status of these texts uttered, created and transmitted in the digital public. Traditional players of cultural industries reacted slowly and cautiously to the emergence of digital markets and failed to supply the demand within these markets, so the previously defenceless consumers started –just because they could– to supply their own demand. They have supplied each other with what was missing from the markets: the marginal, the niche, the old, the expired, the novelties the too expensive. The post–Napster p2p cultural marketplaces grown to be serious competitors to traditional distribution systems.

The mere existence, the structure and the available supply in these new markets point to historic market inefficiencies and outright failures of the traditional cultural markets. They started to offer cultural goods in digital format when traditional producers and distributors were still thinking in terms of the supremacy of the physical object. They warn us that the desired unit of consumption is not what it used to be: downloads shift from albums to single tracks, to whole seasons from single episodes. They make the cultural long tail[13] available. And they offer these goods at a price level where digital information goods should be priced according to economic theory: zero.[14]

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[7] The practice of sharing the music listened on a laptop on the web came under attack by the institution of webcasting royalties. See: http://www.economist.com/research/articlesBySubject/displaystory.cfm?subjectid=348963&story_id=9410606

[8] There are no exact measures on how big the Napster library was in its heydays, but one can have a rough estimate by looking at the size of other music services that are built using the resources of the users. The databases of CDDB (Gracenote) and last.fm collect information based on the CDs played by the individual computers on the network. These databases have collected information on 50 and 65 million music tracks respectively. Each and every of these track can be ripped and shared without any additional investment on the user side. To put this number in perspective, the number of music tracks that can be legally purchased is around 5 million eight years later.

[9] Bodó Balázs: R0b1n H00d D16174l, available online at http://p2pnet.net/story/12637, originally appeared in Hungarian in Cafe Babel, Winter, 2006.

[10] A nice example of such efforts is Translation Collaboration Project to translate The Encylclopaedia of Diderot and d'Alembert at http:// www.hti.umich.edu/d/did/

[11] http://worth1000.com

[12] http://0xdb.org

[13] Anderson, C: The Long Tail, Hyperion, 2006

[14] It is a tempting to explain the popularity of p2p networks by this single factor of zero price, however such an explanation would be highly misleading. Zero price alternatives have an ambiguous effect on demand (Besen S M, Kirby S N: Private Copying, Appropriability, and Optimal Copying Royalties, Journal of Law & Economics, University of Chicago Press, vol. 32(2), pages 255-80, October; Picard R: A Note on Economic Losses Due to

The incumbent industry players who have a high stake in their ability to commodify cultural goods – and who in most cases are not the same as the creative minds who produce these goods– regard these free alternatives as highly dangerous – maybe rightly so. For them the emergence of free, p2p alternatives is not a sign of problems in the traditional markets, and thus a possible makeshift solution to those problems, but a problem in itself, and the easiest and most effective means to address this problem are the strengthening of the intellectual property regimes, developing technical protection measures and strengthening enforcement.

Too strict –in terms of social optimum– IP protection can be a problem in itself[15] as –among other factors– stronger protection raises the cost of reusing existing intellectual properties[16]. In the war against the free, p2p marketplaces, the first casualties are the limitations and exceptions to IP and derivative works – in other words the reusability, recyclability of the audiovisual cultural heritage, the essential input for the remix culture: the cultural detritus, the vocabulary of the digital public. This does not only affect legitimate uses. Increased IP protection wipes out that gray zone as well, where those consciously or involuntarily tolerated uses happened before.

**But the increase in protection did not help to restore the status quo. It only helped to create the digital underground.**

The history of communication undergrounds is inseparable from the history of communication technologies[17], the histories of those who seek hegemony over these technologies[18], the histories of the infrastructures of control[19] or the history of copyright[20]. In 1557 England, Queen Mary trusted the Stationers Company with the enforcement of the Crown's censorship decisions, and in return she gave the Company exclusive powers to administer the ownership rights of texts that bear the sign of royal approval. From this point in history, an entry in the Register of the Company "was not merely a testimony to the right to print a particular book, but to the unique right to do so."[21] This moment has also profoundly shaped the discussion over the next three hundred years on the status of texts and authorship during which the emerging/invented author[22], while s/he trying to emancipate him/herself from the oppression of censorship[23], needs to re–appropriate the ownership of his or her texts from

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[21] Feather, p 197.

[22] Woodmansee M, Jaszi P (eds): The construction of Authorship, Duke Univ. Press, 1994

[23] „*For Example, a person having Writ a Book, brings it to one or other Licenser, the Law is not express that such a Book shall not appear in the World, there is no Crime committed, but the Book shall be Damn'd in its*

publishers who successfully managed to exclude the authors from the registers before. The authors, who were already familiar with the effects of the publishers' monopoly on texts and how it affects the prices and availability of classical and contemporary works[24] needed to establish the economic base of their profession: they needed to find the balance that maintains reasonable financial rewards collected from the markets in a way that does not block the circulation of texts either.

The fight against censorship came to an end in 1989, when the countries of the socialist block started to rewrite their constitutions and include provisions to protect free speech. Paradoxically this final collapse of state control over the text and the defeat of censorship gave an extra momentum to the globalization process in which intellectual properties turned out to have an unprecedented economic thus political weight. The efforts to secure control over the "oil of the 21st Century" –extending the copyright term, proscribing the limitations and exceptions, extending the scope of protection– raise new –now economic– roadblocks to severely limit the circulation of ideas when the last obstacles to the public interest of the free exchange of texts finally seemed to disappear.

This means that the shape of the literary underground is different from that of previous eras. It is not the political dissident, the pornographer or the heretic who inhabits the underground but the copyright criminal.

David Garcia and Geert Lovink have defined tactical media as

> *„what happens when the cheap 'do it yourself' media, made possible by the revolution in consumer electronics and expanded forms of distribution (from public access cable to the internet) are exploited by groups and individuals who feel aggrieved by or excluded from the wider culture."*[25]

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*Womb, not because any thing in it is offensive to the Government, Irreligious, Blasphemous, or any other way Criminal, not because 'tis a Book unfit to appear, but because Mr. Licenser does not please to like it.*
*I know no Nation in the World, whose Government is not perfectly Despotick, that ever makes preventive Laws, 'tis enough to make Laws to punish Crimes when they are committed, and not to put it in the power of any single Man, on pretence of preventing Offences to commit worse. […]Twould be unaccountably severe, to make a Man answerable for the Miscarriages of a thing which he shall not reap the benefit of if well perform'd; there is no Law so much wanting in the Nation, relating to Trade and Civil Property, as this, nor is there a greater Abuse in any Civil Employment, than the printing of other Mens Copies, every jot as unjust as lying with their Wives, and breaking-up their Houses."* Defoe, D: Essay on the Regulation of the Press, 1704

[24] *„Every privilege is therefore a constraint imposed on freedom, a restriction of the rights of other citizens. In this particular case, the privilege is harmful not only to the rights of others who wish to copy [the protected literary work] but also to all who wish to have copies, for whom anything that increases the price thereof is an injustice. Does the public interest require men to make this sacrifice? That is the question that must be examined; in other words, are privileges necessary and useful, or are they harmful, to the progress of enlightenment? Had there been no privileges en librairie, Bacon would nevertheless have taught the road to truth in the sciences; Kepler, Galileo, Huyghens, and Descartes would nevertheless have made their discoveries; Newton would nevertheless have discovered his system of the world; M. d'Alembert would nevertheless have solved the problem of the precession of the equinoxes. The discovery of the circulation of the blood and of irritability and the successful researches of men like Stahl, Bergman, Scheele, and Priestley were not the fruit of privileges en librairie. In other domains, the works that have contributed most to the progress of enlightenment - the Encyclopedie, the works of Montesquieu, Voltaire, and Rousseau did not enjoy the advantages of the privilege.„*The Marquis de Condorcet: Fragments concerning the freedom of press, Daedalus. Boston: Spring 2002.

[25]Garcia, D, Lovink G: The Abc Of Tactical Media, Nettime, 1997

These groups and individuals are now aggrieved by and excluded from the wider culture by the markets instead of the state. Among them we find the several thousand members of the Silent Library Project[26] (SLP), an illegal collection of mostly out-of-print books that were scanned, OCR–ed, proofread, formatted and archived by the members of the community who—beyond bearing the immense cost of digitizing a book on a flatbed scanner—act as a remembering, an interpretive community as well. There we find the small group of the Nostalgy Music Forum[27], who share with each other the music of their youth, Hungarian dance music from the 60's that rarely made the transition from LP to CD not to mention digital downloads. Countless illegal digital archives hide in the cracks and folds of digital networks. They might remain hidden in the white spots of the digital map, but this means that they must remain hidden from everyone but their members. That is a shame if we look at the role they play in the cultural ecosystems of post–socialist countries. Lib.ru (SLP) – a Russian (Hungarian) collaborative text archive serves the reading publics of the Russian (Hungarian) emigration as well as those who are left unserved by the parallel collapse of the traditional library system and the market that would be able to cater their tastes. Transnational and trans–cultural communities organize their limited individual resources to archive, make accessible, interpret and remember marginal art house cinema[28] or music[29]. These groups were created by some failure by the market and by the capacity to react and counteract to this failure on their own, bypassing the state who traditionally has had the task of addressing such issues.


Ashley Holt: "Notmickey"
Pen, paper, and photocopies, 2002

Illegal archives address the problem of distribution, but they are not the only ones who find refuge in the digital underground. Next to the texts that do not have enough economic value to be interesting to the market we find those works that contain too much value to play with. In this strange conceptual space that floats between and blends the notions of samizdat and tamizdat, high art, seasonal pop culture hits and educational materials co-reside. Copyright restrictions on derivative works and the limitations on fair use renders Ashley Holt's Notmickey, Dj Dangermouse's Grey Album (a mash–up of the Beatles' White Album and Jay–Z's Black Album), a fan translation of the latest Harry Potter book, the latest YouTube lipsync video and the journal article with cracked DRM secret, hidden, undisclosed at best, unspeakable, unimaginable, unheard of at worst.

[26] http://slp.dwalin.ru
[27] http://nosztalgiazene.bakelit.hu/
[28] http://karagarga.net/
[29] http://oink.com/


DEW3yl31369: Satu's fight

Last to arrive in the digital underground are the images taken by digital cameras. Mobile phones have liberated the digital cameras from the bedroom and introduced the events of the public and semi-private physical space into the digital. The descendants of Zapruder have many options to choose from when it comes to exploiting the potential of citizen journalism and the promises of web 2.0 as there is no media company that is not engaged in ruthless competition for user-generated images. But it seems that these accidental documentarists, these involuntary eyewitnesses are in many cases less than eager to rush to get to the screens of CNN or the local news program just because they can. The makers of clips documenting abuse, incompetence in classrooms, police brutality on the streets, kids seriously hurting each other, prisoner abuse in war zones seem to have a clear understanding of the weight and potential effect of their evidence on their immediate social contexts in the era of hybrid media systems. They seem to be aware that it is their local, personal relations, their status, position in their peer network, the whole system of loyalties, responsibilities and dependencies that are at stake here. Most of the images from the categories mentioned above were intentionally created as evidence but few as testimony to be revealed. Those that got out into the mainstream did so because something horribly went wrong: noone disobeyed –for very good reasons– the rule of the digital omertà, but a parent, supervisor, outsider got a glimpse on the contents of the shared folder in the computer or the mobile phone. We know nothing about the rest, though they exist, sometimes right in front of our eyes, as one of the millions of online videos that noone seems to stumble upon.

**The first rule of Fight Club is, you do not talk about Fight Club.**

We have a lot to learn from the digital underground in terms of what kind of forces have brought it into life and how it is organized. The space of this underground is far from an anarchic, "anything goes" environment. As it thrives upon—thus depends upon—the resources of its users, it needs to devise elaborate norms and technologies to coordinate these resources. Underground communities need to control access and at the same time come up with ways how to decide who controls access, by what terms rules get formulated, how to handle threats from free-riding, abuse, unwanted exposure. The digital underground is an information commons in its classical sense[30], it reflects and re-enacts its historic precedents: the 17th century pirate utopias[31], the Carnival[32], Samizdat[33], zine culture[34], pirate radio. There is one big difference though: while these latter were limited by the physical, subject to the enclosure of the map and locked into the unavoidable simultaneity of the temporal, digital networks, as long as their generativity is preserved[35] offer unlimited space for retreat.

[30] Hess C, Ostrom E: Ideas, Artifacts, and Facilities: Information as a Common-Pool Resource, In: Law and Contemporary Problems, Vol. 66 (Winter/Spring 2003), Numbers 1 & 2
[31] Rediker, M: Villains of All Nations: Atlantic Pirates in the Golden Age, Beacon Press 2004
[32] Bey, H: The Temporary Autonomous Zone, Ontological Anarchy, Poetic Terrorism, Autonomedia Anti-copyright. 1985, 1991.
[33] Eichwede, W: Europe and its samizdat, The Research Centre for East European Studies at the University of Bremen (ed.), Samizdat – Alternative Culture in Central-and East Europe from the 1960s to the 1980s, 2002
[34] Duncombe S: Notes from Underground: Zines and the Politics of Alternative Culture, Verso, 1997
[35] Zittrain J:Saving the Internet, Harvard Business Review, June 2007

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## Toward telecommunicative democracy
## – Telecommunications Convergence as tool of social justice –

*What philosophers want with telecommunications convergence?*

Convergence can be understood not only technically in the sense of the convergence of different telecommunication devices, but also philosophically, as the convergence of people into a new kind of mobile society. I ask, whether this mobile society can turn societies into democratic communities. Should we not say that telecommunication convergence leads to telecommunicative and telecommunity convergence, which is a further possibility of the realization of social justice? It can be so, and I formulate my first thesis, for which I will argue:

(1) Telecommunications industry can actively support to establish and strenghten democracy and to make sure the world for it.

As in the ancient Greek polis the politicians and thinkers, as in the modern times the great political philosophers and the constitutional fathers of the first modern democracy, and as in the twentieth century such philosophers as John Dewey, Jürgen Habermas, Jacques Derrida, John Rawls and Richard Rorty, further, as such institutions, as the modern democratic constitutions in so many countries in the late twentieth century – in the twenty-first century, it is possible, that *mobil communication companies and services will be one of the main garants and enlargers of democracy*. Mobil communication devices can become the vehicles of democracy and social justice. I do not want to say that mobile communication manager should work on the theory of justice or democracy. They business is, that they bring the mobile devices to so many people as possible, and they should do that in large scale. Mobile companies are making their benefits, but no one should forget, this benefit depends on the possibility of free communication, and this is possible only in democracy. It is the business interest of mobile companies as it is the interest of us all, to secure democracy and to make possible the democratic developments in non-democratic countries. My second thesis is:

(2) There is no mobile communication on the long run without democracy and there is no democracy in the future without mobile communication.

The thesis does not mean of course, that everywhere, where mobile phone is used, there is democracy. But it does mean, that mobile phone were developed and made possible in democratic countries and that non-democratic countries which allow inside of their territory mobile communication, they allow to enter a piece of democracy there. This piece can then work as a yeast, moving the public toward democracy.

Manuel Castells writes, „we have observed a growing tendency for people, in different contexts, to use wireless communication to voice their discontent with the powers that be", and describes three cases from the early years of the century, which are „the ousting of President Estrada in the Philippines in 2001, the electoral defeat of the Spanish Partido Popular in 2004, and the voting into power of Korean President Moo-Hyun in 2002." [1] There are fears in the democratic world, that gangs, political groups or clans could take over great power over different segments of the society or economy with the help of fast mobile communication. And this remains always a danger. As for every development in technology, it can be used for good or for bad. But the examples are certainly encouraging. And if philosophers are right to say, people have a sens for social justice, mobile communication can help to have more and perhaps overall changes towards more just societies. The chance against gangs or political groups comes with the possibility of connecting of a huge number of fast communicating people, who can have through that enormous communicating power much more influence on political developments then gangs, which are and remain a little minority in society and societal communities.

Philosophers and empirical researchers of the society had since long time the conviction, that most of the people would like to have justice in society and are not interested in criminal activities. Criminal activities can never secure and stabilize communities and societies, they lead to animosities and tensions, they do not give security for raising children and they give over an insecure world for future generations. Besides these, economist emphasize, that people like justice, human beings have a sense for just and upright social relations.[2] We arrive to my third thesis:

(3) Mobile communication of enormous number of people can help societies to move toward more just societies, just on the basis of the sense of justice.

If we ask the question, „What do we want from a convergence of telecommunication?", probably many of us agrees with the answer, more social justice, a safer world for democracy, and that means, a safer, less cruel world for human life, where there is more real justice in the world.

As most philosophers agree, the condition of social justice is a reasonable public sphere, where people can articulate their views, intrests and can make agreements which is good for all. Justice is social goodness for all, produced in public reasoning, and public reasoning can be much more effective with mobile communication.

*Public reasoning*

[1] Castells, Manuel – Mireia Fernández-Ardevol – Jack Linchuan Qiu – Araba Sey, *Mobile Communication and Society: A Global Perspective*, Cambridge, MA, The MIT Press, 2007. 185. The detailed description of what happened, see 185-214.
[2] Compare D. Coyle, *The Soulful Science. What Economists really do and why it matters,* Princeton University Press, 2007; N. Häring, O. Storbeck, *Ökonomie 2.0 – 99 überraschende Erkenntnisse,* Stuttgart, Schäffer-Poeschel Verlag, 2007.

It is well known, that by John Rawls, as Amartya Sen remarks, „the interpretation of justice is linked with public reasoning".[3] The famous passage of Rawls about elaborating social justice is, „a purely hypothetical situation characterized so as to lead to certain conception of justice. Among the essential features of this situation is that no one knows his place in society, his class position or social status, nor does any one know his fortune in the distribution of natural assets and abilities, his intelligence, strength, and the like. I shall even assume that the parties do not know their conceptions of the good or their special psychological propensities. *The principles of justice are chosen behind a veil of ignorance*."[4]

Is this not an introduction or invitation to the choose of the principles of justice in a mobile society or in a society of mobile communication, where no one *really* knows his place in the society? In the mobile society most of the people do not have stable place, everything is in moving and changing, the people, the goods, the resources, the ideas, the feelings. Class positions and social statuses can be maintained in longer term only in immobile societies: in the modern mobile society no one knows, what will happen with him in the future. One can know from experience, that class positions and social statuses are continuously changing. When people and parties do not know any more, what is good for them in longer run, or what justice in society will mean for them in a future unknown situation, and what will be they interest some years later, then they need a new kind of agreement, a new way of elaborating social relationships in justice. In this situation the veil of ignorance does not remain a sheer construction or a bloodless theoretical entity, but it will be an active part in legislation and in many agreements between people. In the mobile society, people's interest is to apply the veil of ignorance, since in this society everyone is „behind the veil of ignorance" about many things, and more and more people realizes that. Mobility is a new kind of ignorance, but also, a possibility of a new kind of knowledge and of a new kind of society.[5]

It is prima facie obvious that mobile communication creates different kind of publics which sometimes do not match to national-state borders. On the other hand, as we know it from Castells, most of mobile communication happens between people living in the same area (family, friend, workplace), so the creation of new communities and public rests between limits. He emphasizes that although mobile communication has transnational effects, it is used mostly by closely connected people, and even in some societies (f. e. Korea) it can lead to strenghten traditional family and community relationships. Castells writes, „the demand for mobile communication has long existed, as family members always want to stay in touch and adjust their activities to ensure the functioning of the family unit. Thus, while the new technologies bring new means of coordination and of social support, they are appropriated in a way that strengthens existing family relationships instead of causing any revolutionary change."[6] With mobile communication it will be not simpler to define, what kind of public we mean as subject of justice and democracy, and what questions should be treated to determine and realize justice.

The classic place of the public reasoning was the agora in ancient Greece, and later the „agoras", the market places of the New England settlements in the seventeenth and eighteenth

[3] A. Sen, „What do we want from a theory of Justice?" *The Journal of Philosophy,* Volume CII, Number 5, May 2006, 213-238, 215.
[4] Rawls, op. cit. 12. My emphasis (J.B.).
[5] See Kristóf Nyíri, ed., *Mobile Communication: Essays on Cognition and Community*, Vienna: Passagen Verlag, 2003 and Kristóf Nyíri, ed., *A Sense of Place: The Global and the Local in Mobile Communication*, Vienna: Passagen Verlag, 2005.
[6] Castells, op. cit. 88.

century, or the „agoras" of the Swiss cantons from the Middle Ages on. History has shown, and I think, and Rawls' theoretical optimism feeds himself from here, that where people living in the Western tradition can have free communities whithout supressing or forcing power from outside or inside, there is a chance, that main political actors put aside their own personal, local and instantaneous interests and can establish a political democracy of their community, which is based on justice. All ancient and modern democracies were founded on public deliberations, on freedom, on common discovering of justice.

If mobile communication can lead communities to public reasoning, and people can express in freedom the „public sense of justice" (Rawls), then we can have real chances to secure the world for democracy and to establish well-ordered societies on local and global level. Rawls say, „a society is well-ordered when it is not only designed to advance the good of its members but when it is also effectively regulated by a public conception of justice."[7] It is not important to build societal structures on the „moral goodness" of the individuals (this would lead to absurdities, to dictatorial systems, to loss of freedom, which is the life-blood, the prime mover, the *conditio sine qua non* of democracy), and it is not primarily important to support the well being of the people in the society, what counts, is, that the *public conception of justice regulates effectively* the institutions of a society. Mobile communication can help to develop justice and to establish and control institutions which ensure the effectivness of justice.

*Mobile telephonia*

What happens with public reasoning and democracy in the age of mobile telephones? We are at the treshold of the possibility and perhaps of the realization of a much larger, more participative and more global democracy. There are just three quoted examples from the beginning of this century, where people with fast, mobile and networkly connected communication changed the outcome of political elections. It can be taken for certain, that millions of mobile communicating people did not phoned and voted against their own common interest. They could agree upon, which political leader is good for them, and in this case, good is certainly equivalent „hopefully brings more justice in the society". These were perhaps not examples of creating procedurally just institutions or new procedural constitutions. But if it happened, then it can again happen, that in some countres, in Asia, in Africa or Latin America, at the occasion of a political turning point a new elected political leader, can overcome the obstacle of his personal interests and begins a process of building new institutions and a new constitution in the above described historical-normative sense. If he is in a situation to do that and the ennemies of his project do not overturn his administration before the work is done, because he builds on the sense of justice of the people, he can have chances to realize justice and procedural democracy. That process needs the public, the new agora, which *is* the mobile communication. Millions of people can react in the mobile network and influence the political events. This way people can participate in shaping new constitution and new institutions. Since this kind of miracles happened in agora-conditions earlier, it cannot be exluded, that in the new mobile-agora there won't develop – as unforseen and *inattendu,* as the first modern democracy – the first Democracy of mobile communicating people, the first *Mobile Telephonia.*

[7] Rawls, op. cit. 4-5. In the following passages quotations from Rawls well be from here.

*The Global aspect*

It should be emphasized, that *Mobile Telephonia* will be not a global, but a local community, a sate. As the most mobile phone uses are between family members, also, the most political phone uses happen in the own local community or country. If this kind of evolution sometimes and somewhere happens, then Rawls alleged skepticism would not be justified any more. Amartya Sen writes, „even though Rawls was a visionary leader of thought on the importance of public reasoning, he had considerable skepticism about the use of public reasoning at the global level."[8] This skepticism can have two interrelated reasons, the difference in cultures and political power-relations on the one hand, and the difference of languages. The difficulty with the difference in cultures becomes today more dramatical, in the age of not only possible mobile telephonias, but in the age of the felt danger of global terror. Antropologists and literary critics say that not only in European cultures, but in most cultures (the best seen in folk tales), there is a strong sense of social justice. If it is true, then in an optimistic scenario it is only a question of time, and of right education (which can be done, or even which can happen on large scale also via mobile communication) that people move toward more just condition and perhaps toward establishing procedural democracy. On the other hand, the difference of language seems to be overcome with one general language, which is spoken by everyone and everywhere, the English. (This is probably true even, if Manhattan high society little children begin to learn in early age mandarin.) As Dewey said, founding, developing and maintaining democracy takes time, and it is of course a question of future history, whether global terror or global warming leaves us so many evolutionary time. Habermas spoke in European context about the necessity of a common language base for building a European public sphere, where public reasoning is possible for common justice and for European common democracy.[9]

Global justice cannot be reached of course without mental or cultural developments of people in countries, living until today in non-democratic political structures. Otherwise the process would be not democratic, coming from demos, which becomes more and more citizen of his own country. But member of folks become citizens, when they establish themselves their procedural justice and their democratic institutions. An educational, institutional and cultural support from other societies can come but only with the agreement of the people in the given country. Otherwise they won't feel that it is their creation and it is their democracy – and then it won't be a real democracy even with establishing imported democratic structures. Today in Western democracies „the concept of a possible alternative … society is excluded" by the people.[10] But it is the result of long historical, cultural, philosophical and political developments. And this situation is reached just by gradual, processual and even procedural discovery and establishing of societal justice and democracy. We cannot suppose that other communities can do in one day with principles establishing their democracies. But if they establish, it will be procedural and from inside, as described in possible developments of *mobile telephonia.*

As Dewey remarked, democratic societies are as stable, as human beings themselves. Mobile telephones can help a lot in making more stable and just societies – and more satisfied human beings.

[8] Sen, op. cit. 229.
[9] J. Habermas, *Die postnationale Konstellation,* Frankfurt, Suhrkamp, 1998, 155.
[10] Robert Cox, quoted by Habermas, op. cit. 91.

**György Csepeli**

Wiki Knowledge

„Wiki" is a Web software for facilitating intellectual cooperation of many people who otherwise would not meet and cooperate with each other at all. „Wiki" stands for „quick" in Hawaiian. The first wiki product was the Wikipedia which is operated on the assumption that collaboration among anonymous volunteers will result in improvement of content. Wikipedia is authored by thousands of authors who continuously are correcting and monitoring each other's contribution. Anybody can be an expert of any field. The result is a dynamic, ever developing body of content which is highly vulnerable to vandalism and has the potential of inaccuracies. The whole process, however, is reminding to a Darwinian process of evolution which allows future only to the fittest condemning to the extinction of the unfit.

Wikpedia nowadays has become a global movement of collective scholarly content development in English having many variations in local vernaculars as well. In contrast to heavily organized scholarly enterprises with top-down ontology, hierarchy of experts and editors such as Encyclopedia Britannica or Magyar Nagylexikon Wikipedia is in accordance with the way people construct their reality and has the capacity to evolve instantly building content from bottom-up.

Wikipedia is just the beginning of a collective, global and universal collective content development movement. Dictionaries, digital libraries, audiovisual archives, electronic learning materials, multimedia news will follow. Members of the digital generation, natives of the information society, and users of new communication technology are keen to create content for their own benefit based on the principles of openness, sharing, participation and mutual expertise. A new culture is emerging on the basis of the new Web's participatory architecture which is unstructured, bottom-up and following the pattern of collective self-organization.

Creativity always comes from disruption and clash of conflicting constructions of social reality. Due to its collective nature the new Web can be considered as one of the most efficient tool of creativity. Wikis provide the means to participants to develop and exchange photos, texts, audiovisual documents, music, databases which yield a new experience stemming from the„wisdom of the crowds". Wiki knowledge is far exceeding the limits of the concept of traditional knowledge. In contrast of web 1.0 modes of usage such as search, navigation, browsing and sharing web.2.0 activities contribute to the evolution of collective knowledge through social book marking, folksonomy. Collective tagging represents a new principle of collective memory which is more than representation of the existing cultural content. People who apply similar tags are members of semantic community. By common categorization of content knowledge and community merge resulting in a new mode of social existence.

The open platform and the set of tools make possible for participants to create effective cultural and information services on the Web that are completely inaccessible to centralized, monopolistic forces. Principles of creative mass collaboration such as participation, openness and sharing clash, however, with proprietary principles. There is a war nowadays between those who think that everything should be free" and those who believe in ownership which should be rewarded by monetary means immediately after the service was provided.

We believe that in the long run the new Web and its wiki contents will lead to development of self-organizing business environment which makes possible to harness the benefits stemming from the creative commons.

One should not forget that the new web is embedded in a highly sophisticated technological infrastructure which is supported by whole branches of ITC industry. Fixed and mobile technological network of broadband data transmission is the basis. Without costly infrastructure people cannot be connected. Free creative collaboration between connected people presupposes the existence of keep developing ICT business segments such as electronic communication networks, hardware and software production, system integration and last, but not least, education of digital literacy. These are the most powerful forces behind economic growth.

Unless people are not educated and equipped by eSkills, connection would not result in creative collaboration. The number of competent people should reach the critical mass.

What is the motivation of the connected people to take part in wiki enterprises? Motives of self-improvement, fun, altruism, idealism, striving for a better society, looking for community can be mentioned.

Consequently, the concept of „wiki" cannot be reduced to quickness. It is referring to cooperation, mutuality, community and collective nature of our knowledge about the external and internal world. These are not recent features of social existence, but rather constant concomitants of the human condition. Wiki is just a new form of cultural production which is strikingly similar to the ancient „Volk" type of culture emerging in „Gemeinschaft" societies based on oral transmission of content from generation to generation. Songs, sagas, magic rituals, musical tunes, and epical contents varied and had been improved by the same ways as have been done by the wiki software on the Web. Collaboration among members of the anonymous „Volk" improved content over time in the way Linux, Wikipedia, Flickr, Technorati, Second Life, InnoCentive, MapQuest, Facebook Del.icio.us have progressed gradually due to the collaboration among members of the digital „Volk". Wiki can be considered as the awakening of the „Gemeinschaft" mentality.

Apart from the differences due to communication technology there is a principal difference between the two modes of Volk cultural production. „Gemeinschaft" products had been advancing over centuries resulting in the selection of the best solutions and variations. Culture produced by wiki software does not have crystallized community norms of selecting. Members of the digital generations are keen to use services of the participatory Web and ready to create anything that involves culture. They are embedded in modern society which separates their life world from the system lacking transparency and freedom to act. Consequently, mass collaboration of information production instead of wisdom can result rubbish, biased representation of reality, and misinformation. These phenomena lead to collective delusion. As history has shown the tendency of destruction is inherent in mass behavior.

Lacking proper means of control such as peer review, competent and trusted guidance that filters out disparate, evil contributions from users, wiki knowledge can be transformed into a chimeric nightmare. The art of guidance of the collective presence on the web is to recreate balance between chaos and order – which is a task belonging to the future.

*István Danka*

## PICTORIAL MEANING: ABSTRACT SYMBOLS VS. MOVING PICTURES

The thesis of my paper is, paraphrasing Quine, that the unit of pictorial meaning is the whole of a *movie.* Following Kristóf Nyíri, I argue that pictorial meaning is more direct than linguistic but with the restriction that meanings of static pictures is derived from those of moving pictures. Static pictures, not interlinked with other pictures, lose their *context* which is a constituent part of their meaning.

By decontextualisation, some possibility (sometimes *necessity*) of interpretation occurs – that is why decontextualised entities do not have any direct meaning. The smaller (spatio-temporal) segment is cut out of reality, the higher is the need of interpretation. Icons are more concrete than words, photos are more concrete than icons, and the most concrete meaning bearers are probably movies or talkies. Cut out of reality, they are abstractions as well, but they also bear a *context* which makes them more immune to different interpretations. That is my main reason to claim that if we worked on a theory of pictorial meaning, we should be 'pictorial meaning holists'.

### Introduction: Some Wittgensteins on the Importance of Pictures

One of the most extreme theses of the most extravagant contemporary Hungarian philosopher, Kristóf Nyíri, is that human thinking is essentially pictorial, and, hence, using multimedia device like mobile phones is comfortably capable of transmitting basic cognitive information. Making his extreme claim even more extreme, he grounds his view in the philosophy of (the later) Wittgenstein who, as it is commonly held, claimed that human thinking is substantively propositional. Nyíri admits that "[t]he later Wittgenstein is interpreted as holding a use theory of pictures, according to which pictures by themselves do not carry any meaning" (Nyíri 2001a). Nyíri analyses, however, several of Wittgenstein's remarks written in the 1930s and 1940s, generally unknown before the publication of (Wittgenstein 2000), by which he raises some doubts against the allegedly unquestionable dominance of linguisticism in Wittgenstein's later philosophy of mind. Somewhere I argued earlier that even though (Hrachovec 2004) is right that Nyíri throws out the baby with the bath water, Nyíri's purpose is clearly not balancing between two radical sets of interpretations of Wittgenstein but only showing how one-sided the generally accepted one is.[1] His picture theory of reason (below PTR) based on the view of H.H. Price rather than that of Wittgenstein; what he argues for in (Nyíri 2002) is that there is a theoretical ground of being a Wittgensteinian and holding PTR at the same time. Nyíri just *flashes* a new (general) image of Wittgenstein which is blurred and therefore detailed only to a certain degree – he argues, in accordance with his PTR, *pictorially.*

What I myself argue for in this presentation is that there is a clearly Wittgensteinian way of understanding of pictorial meaning I shall call pictorial meaning holism, even if Wittgenstein himself has never worked out such an account.[2] Hrachovec also acknowledges that "Wittgenstein toys with the idea to regard a sequence of drawings as a language" but it has been found out that "[i]mages cannot be joined by logical connectives" (Hrachovec 2004, p.203). Hrachovec is right that *"[n]either sentences nor pictures,* taken in isolation, are sufficient to determine their correlate states of affairs" (ibid, original italics). As Nyíri put it, pictures, as well as linguistic expressions, "acquire meaning by being put to specific uses and by being applied in specific contexts" (Nyíri 2001a). Using logical connectives is, however, not the only possible cohesive power. Nyíri cites Wittgenstein's (MS 145, 70-71) that shows an evident solution to the problem of giving inherent meanings to pictures – i.e., meanings without labelling: so far as they are *linguistic* meaning entities among which logical connectives make *propositional* connections, among *pictorial* meaning entities we should suppose another kind of connections. Connecting pictures together appropriately constitutes a *moving picture.*

Nyíri does not forget, but somehow underemphasises, that pictorial thinking is a perpetual motion:[3] static pictures are, sometimes he claims, *borderline cases* of moving ones. His Wittgenstein-interpretation lacks only the decisive point: focusing directly on the word 'cinematography' instead of 'picture', i.e., reversing the line of derivation between pictures and movies. The main reason behind this lack of conclusiveness should probably be that Nyíri's basic insight can be summarised as follows: (1) multimediated mobile

1 Partially similar, important critical notes given by (Neumer 2004) which cannot be discussed here.

2 It should be noticed that an understanding of *linguistic* meaning has not been worked out by him as well. Interestingly enough, this fact never disturbed philosophers of the last century in claiming to be Wittgensteinian philosophers of language.

3 Only a *sub-subtitle* of his investigations is '*Kinemat*'.

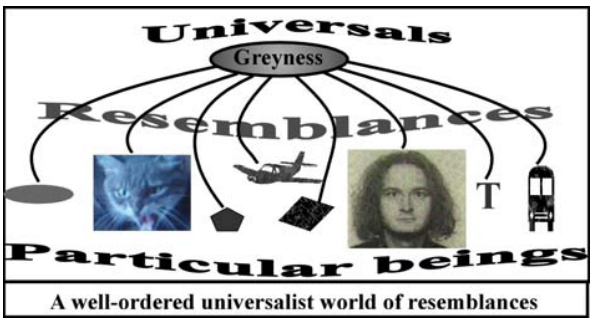
communication well fit into human recognition,[4] therefore (2) humans are often thinking in images or pictures, hence, (3) the linguistic reductionism of the 20th-century Frege-Wittgenstein tradition was a mistake (effectively due to the overemphasis of the role of written words in recognition since Plato). Here Nyíri finishes his main argument.[5] After his destructive movement, the next step towards working out PTR is to explain how *pictures themselves* work in our thinking.

## Universals vs. Resemblances

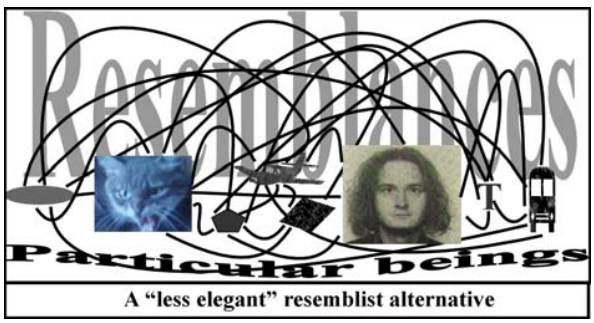
My purpose is, nevertheless, not to follow Nyíri's Wittgenstein-interpretation but his PTR. All the same, it seems to be very illuminating that pictures (and, moreover, moving pictures together with sounds and voices) can be more directly captured by our cognitive capacities than literal expressions – for the simple reason that *the world itself* is experienced in such a way. Wittgenstein, (Nyíri 2002) argues correctly, still realised this point but he never worked it out. "What Wittgenstein [...] suggests" – Nyíri claims -, "is that writing a caption under a picture is not the only way to disambiguate it; turning a static picture into an animated one might solve the problem, too. However, Wittgenstein never returned to this suggestion, and the idea does certainly not surface in his printed writings. It is an idea his embittered adversary H.H. Price brilliantly elaborated in his 1953 book *Thinking and Experience*" (Nyíri 2002). Nyíri turns here toward Price's theory of images. It is Price who applies "the *context principle* to pictorial meaning" (Nyíri 2001a) – a principle which is, with no doubt, Wittgensteinian in its spirit.[6]

(Price 1953) posits his view as a golden mean between two critiques of the Platonistic *universalia ante rem*: between the extremes of purely linguistic nominalism and the purely visual "imagist theory". Nominalism was criticised by showing that "[r]ecognition is a *pre-verbal* process in the sense that it is not dependent on the use of words" (Price 1953, p.37). So-called imagism – i.e., the view according to which words are simply substitutes for images (Price 1953, p.244) – is defeated by claiming that "the *logical* aspects of thinking are almost entirely neglected, and so [imagism] does not even succeed in giving us a complete account of image-thinking itself" (Price 1953, p.297), even if "logical *words* need not be used. A shrug of the shoulders, or a kinaesthetic sensation of an incipient one, might be used instead of the word 'not'" (ibid).

Price's own ontology of pictures is a spectacular, even if not convincing, harmonisation of Aristotelianism ("philosophy of *universalia in rebus*") with a kind of latent Wittgensteinianism ("philosophy of resemblances"). The main difference between these views lies in the question of universals; Universalists think that things are able to bear meanings by their being instances of a universal, whereas resemblantists think that things are meaning bearers so far as they are interconnected with other meaning bearers which they resemble to a certain degree. Whereas resemblance theories deny the existence, or at least the explanatory power, of universals, resemblances play an essential role in universalism. Universalists only claim that resemblances are derivatives of internal characteristics of things, namely those of instantiating universals (Price 1953, p.14). Speaking in terms of resemblances seems to be only a way of speaking "less elegantly" about covering "the *same* facts" (Price 1953, pp.30-32).



A well-ordered universalist world of resemblances



A "less elegant" resemblist alternative

4 A thematisation of present changes in communication technologies can itself be a reason why symbolic-iconic pictures are more emphasised than moving pictures, though I wonder if symbols and icons would still be so central in communication after some further development towards high-quality moving pictures and voice control of computers.

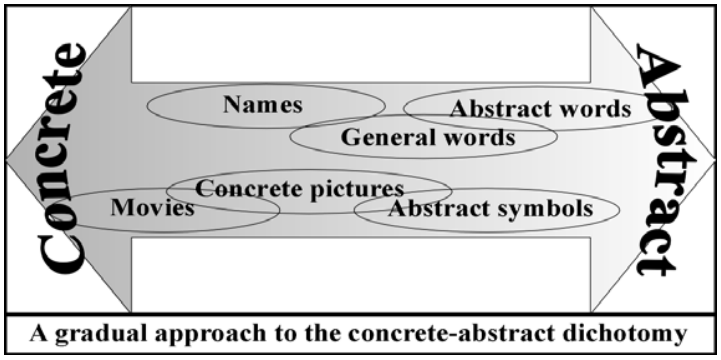
5 More precisely, (3) is still almost fully implicit, except maybe an allusion in the conclusion of (Nyíri 2001a).

6 Admittedly, it is not *specifically* Wittgensteinian; my main argument (in this respect at least) is that Nyíri's PTR is a Wittgensteinian theory, not that it was Wittgenstein who invented it.

After presenting some decisive arguments against universalism and showing some superficial problems with the resemblance theory, Price surprisingly claims that they shall be used in parallel, for avoiding mistakes of both (ibid). If resemblance worked even in universalism, and resemblance could explain monotony in the world, which should be ultimately explained in Price's approach, then supposing universals would be theoretically useless at least. Tracing (external) resemblance back to some (internal) features makes nothing with an explanation of (external) resemblances themselves. I do not see any reason to explain resemblance in terms of a degenerated kind of sameness rather than a proper kind of *similarity.* This line of thought takes the following way: beginning the explanation with borderline cases of exact sameness, and driving at the absolute majority of slight similarities – as if exceptions could serve the proper explanations of rules.

**Abstract vs. Concrete**

Denying the existence of universals, the extreme nominalist thinks, involves that abstract words have no definite meanings which were supposed to be universals previously. In parallel, the extreme imagist claims that abstract words are not able to be substitutions of images with general content. Both views show some good directions but they are finally mistaken. All the same, a more sophisticated theory of abstract entities is needed, based on a gradual concept of abstraction. Seeing the grade of abstraction as a degree of lack of concreteness[7] allows explaining meanings of general words and pictures (which should be understood, following Price, as schematic/symbolic visualisations).



A gradual approach to the concrete-abstract dichotomy

Abstractness vs. concreteness plays a crucial role in the issue of relation between words and pictures. As one of Nyíri's another heroes, Allan Paivio puts it, "[v]erbal processes are presumably less dependent on concreteness for their arousal and functioning, hence their *relative* usefulness accordingly increases as the task becomes more abstract" (Paivio 1971, p.9, original emphasis). Regarding their degree of abstraction, there is probably no clear gap to be drawn between words and pictures. But words are, in general, closer to the most abstract extreme, and pictures, in general again, are closer to the extremity of concrete. However, not only words but pictures, even photos, are at a certain level of abstraction since by taking a photo we focus on one certain segment of reality, cut out of its milieu that decontextualises that picture. Abstraction is a method of disregarding some particularities to grasp the supposed essence – that is the same method as taking a photo of something rather than something else, focusing on a certain size, setting resolution, contrast, brightness and colour filters, etc. etc.

There is an important distinction between (relatively) abstract pictures (symbols, signs, icons, etc) and (more) concrete ones (photos, realistic paintings). Abstract pictures are mostly abbreviations or indicators, hence, their meanings are often fixed only by conventions, even if eventually supported by some similarities – i.e., context-dependence occurs in their meanings via a meaning-constitutive character of social embeddedness. Concrete pictures, due to their (relative) concreteness, (more) directly present pictorial meanings. A concrete picture is relatively rich in details, that is why it is not abstract – i.e., not (overwhelmingly) isolated from its original context. Concrete, finally, means itself. Therefore no problem of its meaning occurs. If a problem of interpretation occurred then that picture would not be seen as a concrete

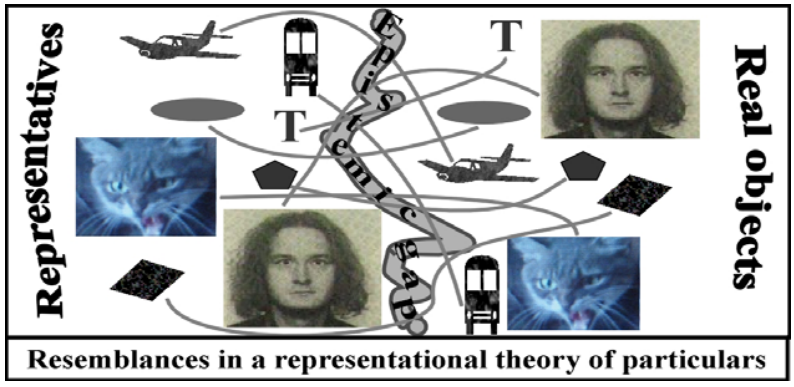
7 A similar theory has been worked out by Locke at a conceptual level. Conceptuality as a set of distinct hierarchical categories does not seem to fit to, but can be probably harmonised with, a fine gradual account of mine. The whole individualistic epistemological, and atomistic meaning theoretical frameworks of him are, however, completely incompatible with my view.

one standing for itself but as a general sign of something else: a representation rather than presentation. Representation is, however, always recontextualisation: relating something to something else to which it was originally not related.

Words (with very few exceptions like names) are still at a relatively high degree of abstraction: they are standing for a huge number of things, disregarded particular features of those – similar to the role of abstract symbols. Their meanings cannot be fixed simply by presenting them but only by relating to a system which recontextualises them. That is why, as Nyíri put it, (concrete) pictures are more direct meaning bearers than words. PTR shows something more, however. If the above-mentioned are right, concreteness plays a decisive role in directness of meaning. Therefore not only Platonistic ontology, but Fregean philosophy of language, finding meaning bearers in abstract entities called concepts, should be discredited in a theory of meaning which involves an analysis of pictures, not only that of words.

**Representation vs. Presentation**

It is often suggested that concreteness of pictures lies in their direct resemblance with what they represent. For example Robert Hopkins, a recent challenger of Nelson Goodman's extreme conventionalism, claims that it is a "natural thought" that pictures "look like or resemble what they represent. [...] In contrast, written descriptions of these things, whatever tongue they are in, do not resemble them" (Hopkins 1998, p.9). In another important recent critique of conventionalism (and of psychoanalytic approaches to film), (Currie 1995) also argues in terms of representation.



Resemblances in a representational theory of particulars

Representationist theories are useful in defending commonsense realism regarding what pictures and movies are about, but bothersome in introducing metaphysical realism regarding what representation itself is about. Representation is, all the same, a rather dubious concept in the history of philosophy; almost everyone uses the notion but no one ever defined exactly what it means.[8] I preferred to suggest above that concrete pictures do not resemble what they represent since they simply present themselves.[9] The reason why they are directly 'bearing' their meanings is simply that their meanings are *identical with* them: their meanings are nothing less and nothing more than they themselves.

My own explanation is based on a point of view of philosophy of communication. So far as representation is not the primary goal of verbal communication, there is no reason to see why it would be different in the case of pictorial communication. Pictures, most notably photos, are undoubtedly more efficient instruments of representation – it is, however, not the same as saying that they are essentially, or exclusively, representatives.

There are some questions could be raised here. What do I then actually mean by pictures? Are they mental images, or physical pictures? Where are these? On a canvas or a piece of paper? In the spatial location they present or represent? In the mind, or inside our head? etc. etc. Not only the difficulty of these

8 Nyíri sometimes alludes to mental images or representations, by which he, following Sellars (Nyíri 2001b) and Paivio (Nyíri 2003), means theoretical constructions with certain inferential roles. In this sense, mental representations cannot be, however, pictorial. According to Paivio, they are straightforwardly unobservable, even if "having observable aspects and implications" (Nyíri 2003, p.159, fn.2).

9 This distinction may seem to be similar to Kendall Walton's distinction between representing vs. reproducing reality. Every picture and film, however, practically *presents itself,* even if an aesthetics which strongly accused with representational epistemology would claim it also represents real objects in some sense.

questions is my reason why not answering them. Images or pictures, whatever epistemological status they have, are important for my present purposes only so far as they are objects of a theory of meaning. My question here is simply what significant is in a picture for a receiver/observer, independent of her supposed epistemic frameworks – i.e., the question is whether pictures bear some publicly shareable meaning *in themselves.* It can be argued that the observer always is in a need of recognition. What follows here is, however, a framework for a topology of pictorial meanings, not a theory of how they are constituted or recognised. Nevertheless, this view supposes that if there is nothing "there" (independent of where this "there" is) then there is no possibility of common recognition at all. *How* we see the world is a feature of us, *what* we see is a feature of the world. If a kind of monotony is recognised anytime by anyone, as Price claims, it shall preferably be supposed to belong to the thing itself – not for the reason that we have strong epistemological arguments supporting this but for the reason that it is theoretically more economical to assume it. Avoiding problems of representation – most notably, an unnecessary and insufficient duplication of the objects of the world –, here I *presuppose* a kind of direct realism without arguing for and against.[10] If someone preferred a more sophisticated metaphysical theory, she should picture my theory on either, or even both, side of the epistemological veil of ignorance.[11]

**Atomism vs. Holism**

If someone like me rejected the view that particulars are resemblances of universals, and the view that concretes are resemblances of abstractions, and finally the view that representations are resemblances of what they represent, she should come to the conclusion that resemblance can be drawn only between two entities with *completely homogeneous ontological and epistemological status.* This is a far cry from the semiotic point of view criticised by (Currie 1995), according to which "there is a fundamental commonality between pictures and language" (Currie 1995, xvi), even if I also disagree with his point that "pictures and language are fundamentally distinct" (Currie 1995, xvii). His main concern with semiotic approaches is their direct parallels between linguistic and pictorial – I am rather interested in finding partial similarities and dissimilarities. In linguistic phenomena, basic units are propositions, among which relations are logical inferences. In pictorial phenomena, basic units are frames of a film often called pictures, among which relations are temporal successions. Both oral/written and (moving) pictorial communication is linear, whereas at certain stages both have multidimensional sidetracks but quite different in their nature: in the first case they are consequences of associations (due to highly abstract words) or cross-references (due to divergent lines of thought), in the latter they are consequences of the two-dimensional extension of static pictures as parts of the movie, demonstrating a huge mass of information synchronously.[12] In a holistic view developed here, what is important is a set of interrelations among homogeneous meaning entities – pictures should be understood in their relations to pictures, and words to words; that can only be a next step to see how their *complexes* are related to each other.[13]

Cutting down the extreme poles and seeing their metaphysical differences as gradual transition, notorious philosophical problems disappear. Be pictures mental, physical, constructed by the mind or physically caused, ephemeral or eternally given, more abstract or more concrete, more or less similar to each other the territory on which they lie is the same. Meaning properties of pictorial meaning entities are constituted by interrelations with other entities of the same type. This view is, at the first instance, pictorial meaning holism,

10 For realist accounts of film, just some pieces of the basic literature: (Panofsky 1947/1995), (Bazin 1967), (Cavell 1971), (Walton 1990) as well as (Danto 1979/2006) and (Carroll 1996/2006) from the elementary textbook (Carroll-Choi 2006).

11 In fact, there *are* obvious ways of doing this. (Kondor 2006) brilliantly harmonises a direct realist view with a strong, we may say Kantian, constructivist conceptualism within an historical/evolutional perspective of communication technologies.

12 A role of motion and time in an ontology of movies is different from that in a narrative theory of films. Films containing 'flashbacks' are at a more abstract level than one-way linear stories, e.g. everyday home videos. For the problems of the first see most notably (Currie 1992), applying McTaggart's infamous argument against the reality of time to problems of tense and temporality in film theory. Flashbacks and related things do not affect, however, my video message serving a pure communicative function on Skype i.e., they are not substantive features of the medium.

13 Nevertheless, a meaning theoretical framework for *talkies* (motion pictures supported by voices and sounds) is an obvious holist starting point here. On some differences between silent and sound films, see (Bazin 1967/2005)'s debate with (Arnheim 1957/2005), whose discussion is reappeared in the fundamental textbook (Wartenberg-Curran 2005).

the thesis for which I am mainly arguing, where 'holism' means that the meaning of a context as a whole determines the meaning of its parts. Pictures have got their meanings from being put together with other pictures of a movie.[14] Holists do not necessarily deny that pictures have representational functions; their only claim is that such a function is secondary at most. Without interrelated with others, no meaning entity could represent – simply because without interrelated with others, no entity counts as meaning entity.

Here we arrive at a further important point of meaning holism: its being opposite to meaning atomism. Meaning atomism is the view according to which basic meaning entities are – in the case of linguistic meaning – isolated words. Meanings of sentences, talks or texts, are then composed by the meaning of their parts. According to atomism, meaning of words can be identified with certain non-linguistic entities – either with particular beings, or with abstract entities often called 'concepts'. If the above-mentioned are right, however, singular words (except names) are very far from being able to bear concrete meanings. Atomists mostly happen to say that meanings of words are concepts – the old, good abstractions or universals, based on the alleged sameness of words in different contexts. In a meaning theory of language, two words often seem to be *the same,* because of their morphological identity, even if their different contexts invests only *similar* meanings to them, from which their 'real', universalistic meanings should be abstracted. In a meaning theory of pictures, even a pen sketch or a crayon drawing can be hardly seen as the same with another one, but their *resemblances* can reveal connections. In fact, meaning atomism can well be characterised as the view according to which meaning is derived from universal entities – there is simply no other way how singular words, isolated from each other, could have got their meanings. If it is true, any non-holist theory of meaning is accused with either a Platonist or an Aristotelian ontology. There is of course a third alternative for the atomist: to be a meaning nihilist.

In the rival approach, resemblances yield inherent resource of meanings. What a certain word means, according to meaning holists, depends on its interrelations with other pieces, i.e., on its role in the language game as a whole. Monotony mentioned by Price is promoted to patterns which are able to be recognised and recollected. They show *coherence* that makes things *meaningful.* That is why, paraphrasing the famous non-Wittgensteinian holist Quine, the unit of meaning is a language (or a language game broad enough) as a whole. Meanings of singular pieces is derived from the meaningfulness of the whole – not from other isolated entities called 'universals' which are, if Plato is right, short of being understood even more. The logical priority of the Many and the One shall be reversed, as universalism claims; One is over Many but not in the sense that a universal governs the particulars. Particulars are essentially *parts* of a whole: language is not built bottom-up but top-down.

A top-down building of a theory of living pictures is significantly more obvious than that of words and hence needs no sophisticated argumentation. Without consisting of pictures unscrambled, puzzles are unable to be scrambled. Mixing pieces of photos made in different situations, however acutely, never yields a movie. Using a digital camera, it is *evident* that a singular photo is simply cut out of a video. On the other hand, it is also clear that a movie can never be properly assembled of isolated photos if those photos were not isolated from - precisely the same, or an at least very similar – movie.[15] The thesis of compositionality, which is the strongest (even if, in my opinion, not doubtless) argument for atomism in linguistic theories, simply *collapses* in PTR.

Coherence is either originally given, or it can never be established. Meaning is a meaning theoretical entity; if it could not be explained within a meaning theory, the theory would be meaningless. A picture theory of meaning shall be able to explain what pictures mean inherently – it is not the same as saying that pictures play no role outside their own territory. Since isolated pictures are often in a need of interpretation, a picture theory of meaning shall focus on interrelations among pictures, stating that pictures are aboriginally embedded into a holistic unity, into a whole of a movie.

14 I shall notice that 'movie' in this paper means not an artistic entity; it refers to any certain set of moving pictures which can be managed as a whole, due to its coherence. There are differences among types of movies in this broad sense; films in the cinema are only one of those. I do not think, however, that *philosophical* differences (in a similarly broad sense of 'philosophy') between different types would be as important as e.g. (Carroll 2001) claimed.

15 A possibility of imitations, forgeries, special film effects is quite another issue – they can mostly be recognised, and if not, the case is simply similar to 'real' perceptive illusions. An overemphasis of *partial* fallibilism is only a weapon of the skepticist for being complacently full with doubt, and a weapon of the metaphysician for being smugly pedant of a reality-appearance dualism.

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**From *always-on* to *always-there*: locative media and playful identities**

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**Summary**

In this paper I look at the Dutch case of Bliin (www.bliin.com) to discuss the convergence of GPS (*global positioning system*), multimedia capabilities, and online publishing software in mobile devices. Bliin enables users to map experiences of places, share these with others via the internet (*geotagging*), and locate people and their preferences (*social proximity*). I explore the implications for experiences of mobility and co-presence. I suggest this convergence creates *playful identities*.

**Sense of place**

In response to the 'old' new media paradigm of "anyplace, anytime, anywhere" - still prevalent in popular thought - recent work shows that technologies like the mobile phone do indeed contribute to "a sense of place" (Nyírí et al. 2005). People are still aware what situations are appropriate for mobile phone use (Höflich in ibid: 160). The mobile helps to create a sense of proximity and intimacy. Familiar people are always 'in the pocket' (Katz & Aakhus 2002; Fox in MobileLife report 2006: 13). People talking on the phone, listening to music, or engaging in any kind of "absent presence", create a bubble around them. They take their own 'personalized space' with them while on the move (Gergen 2000; Bassett 2005). The mobile phone is used to schedule and manage mobility, thus sustaining spatial and temporal order (Chung & Lim in Nyírí 2005: 275). Its use as a walkman adds an aural layer which offers an intense experience of one's environment through sound (Bull in ibid: 175; Bassett 2005). Migrants call and text with family and friends overseas, maintaining a sense of 'home' (Paragas in ibid: 241). The mobile phone even helps to create a sense of 'the global', as devices for worldwide communication through a new common pictorial language (Szécsi in ibid: 409).

I want to look at yet another contribution of mobile media to a sense of place, drawing on my user experiences with Dutch 'locative play' Bliin. What happens when multimedia features like cameras, location-based technologies like GPS, always-on internet connection, and software for realtime publishing converge in mobile devices?

**Bliin: a locative play**

Bliin (www.bliin.com) combines *geotagging* and *proximity*. Registered users install a small Java program on their mobile device. They need a GPS receiver, either integrated into the phone or standalone (e.g. via bluetooth). Their position is sent to the Bliin server in realtime over an always-on data connection. Users can capture photos with their mobile phone camera (in the future also audio, video and text) and attach description and tags. When users publish the photo, GPS coordinates are automatically attached. It appears as a geographically positioned photo on the Bliin web interface, based on Google Maps. Such a *geotag* is called a *share*. The main interface of the Bliin application is a radar that scans for *proximity* of both *shares* and other Bliin users. Via this interface, users can navigate to nearby *shares*. Users can comment on *shares* via the mobile interface and the web. The creator of the *share* will receive an instant indication of a new comment when online. Users decide whether their position, movement, and *shares* are publicly visible, restricted to friends, or private.


*web interface at www.bliin.com*

Via Bliin, users share their presence, proximity, mobility patterns, and personal experiences of places with others. What happens to the experience of place and mobility, and social co-presence?

**Experience of place and mobility: augmented and immersive**

Location and movement are *augmented* with additional layers of information and meaning. The personal experience of being and going somewhere fuses with the 'virtual' realm of other peoples' experiences that are shared via Bliin. This may influence our patterns of mobility, conceptualized as meaningful movement (Cresswell 2006: 2-3). Urry (2000 chapter 3) distinguishes four types of travel, which can be applied to mobility practices *in* and *through* Bliin. When I posted a *share* about a roadside Surinam eating place, near Erasmus University Rotterdam, it became an *object that moved* elsewhere. A Dutch user in Japan commented that she felt like eating roti after all those sushi. She was making an *imaginative movement* back to Holland. At the same time she made a *virtual movement* inside the 'game' by going to my *share* and placing a comment. Another Bliin user actually *corporeally moved* to the eating place, tried something, and commented it was indeed good food. Different types of mobility converge in "hybrid space", abrogating the former separation between physical and virtual worlds through "the mix of social practices that occur simultaneously in digital and in physical spaces" (De Souza e Silva 2006: 265).

Being somewhere and moving around in this hybrid space becomes *immersive*. Bliin invites users to take on a participatory attitude, to contribute to the greater whole of Bliin's playworld. A mildly competitive element of spatial conquest is involved. Who is the most mobile user? Who makes the nicest shots? Who is the first to *share* a place? Who can add something interesting about well-trodden places like Amsterdam? Users become part of a game to map and share their sense of place. Over a longer period, users create stories about themselves that make up a social identity within a user group. After a while personal expressions become more general knowledge about someone's style and preferences. Once you start playing Bliin, you have to play on. Trying Bliin out once, adding only one photo, is not meaningful. After all, only a sequence of images creates meaningful 'sentences' (Nyírí 2005: 378). Bliin becomes a platform for *narrative self-publishing*: telling who you are by ongoing contributions.

"So what's new?" one may ask. Have places and mobilities not always been 'augmented' and 'immersive' through shared or contested symbols and stories? New, I believe, is that experiences of place and mobility can be shared (within a restricted circle), broadcasted (for all to see), and 'consumed' (looking at other *shares*) *in realtime*. Books or pictures for instance also enable a breach between spatial experiences and actual physical presence, but lack realtime feedback. Bliin allows places to be continuously co-constructed by people on the move. Places become written by ongoing mobilities and social processes in "hybrid space". These rapid successions create a myriad of dynamic *micro-narratives* (Hjorth 2005: 5). These tend to have diversions, involve

references to other places, and are often more contradictory than former singular narratives of place.

Second, the expression of spatial experiences change. This is partly a continuation of a shift in *form* from textual to more visual representations of experiences, labeled 'visual culture'. It is also a shift in textual and visual *content* and *language*. Earlier representations often tried to depict a singular 'essence' of place. Postcards and the holiday photograph album for instance attempt to offer representative images and stories of travel. They became *genres* that often stress the spectacular, the beautiful, the lasting, and broadly known cultural symbols of places. Bliin users on the other hand appear to highlight the odd, transient, sometimes ugly or even banal side of everyday experiences. Bliin's textualities (names, tags, descriptions, comments, nicknames) and visuals (photos, avatars, mobile and web interface) do not create coherent 'grand stories' about places that are meant to last. Rather, these stories are fragmented, fleeting, and self-referential: only meaningful within the closed circle of Bliin. *Shares* often refer to other *shares*. Many people have photographed their own laptop screen displaying one of their *shares* in a browser. They turn their mediated experience - "I *shared* this place" - into a new expression. It is also shown by the practice of what on e.g. Youtube is called a 'tribute': playfully commenting on an earlier *share* by somebody else. For instance, I felt an instant urge to comment on a nearby *share* someone made of an oldtimer BMW with the description "nice car", by taking a similar angle shot of a very ordinary car. Totally senseless outside Bliin. Only meaningful within the game.

Thirdly, Bliin users express spatial experiences in highly personal - even idiosyncratic - ways. Postcards and the photo album portray generally known properties of places (In Egypt we visited the pyramids…) and subsequently involve personalization by writing something on the back or by brief subscriptions (… and poor uncle Joe fell off a camel!). Bliin seems to create an inverse movement by making unique inner experiences (This is what I am seeing now) available to the outer world via *shares* (and you may look too!).

**Experience of co-presence: pervasive**

Always-on technologies contribute to altered experiences of *co-presence* from physical to imagined nearness (Urry 2002). What happens when technologies start mediating physical proximity? *Always-there* technologies, as they may be dubbed, help to pinpoint others and trace their movements and experiences in (almost) realtime. Co-presence becomes more *pervasive*, emerging not only when potentiality turns into actual communication, but as ongoing actuality. Game researcher Rhody points out that games create new points-of-view, since the avatar can be seen from different camera perspectives (Rhody 2005). Bliin *shares* offer a game-like over-the-shoulder perspective. Not only one's own seeing becomes visible, but also the seeing of others. Coupled with the realtime aspect, a *pervasive* sense of co-presence arises through sharing perspectives: "I see what you see now". Further, Bliin exposes and visualizes traces of other users' past presence, like 'virtual graffiti'. Users are also aware that others participate in the same playworld. There is even the possibility of physically bumping into another nearby Bliin user. "Technologies of absent presence" create a temporal sense of co-presence, because the other is always available (Gergen in Katz & Aakhus 2002: 237). Locative technologies enable a spatial sense of co-presence, because the other is always there. As *always on* and *always there* converge, a doubled kind of 'present presence' arises.

**Playful identities**

Bliin is a navigation device for organizing experiences of place, movement, and social proximity. Being and going somewhere, and nearness to others are central to our sense of identity. Through identities, people relate to themselves, others and the world around them. According to Ricoeur, narratives are the "privileged form of mediation" for the "interpretation of the self" (Ricoeur 1992: 114 fn1). Events and actions that make up a person's life occur in a *setting*. Settings themselves are narrative, 'scripted' with stories about how to behave in them, what social roles to adopt.

According to Meyrowitz, the advent of electronic mass media weakened the ties between social identities and places (Meyrowitz in Nyírí 2003: 94). As suggested above, the element of *augmentation* in Bliin stimulates further breakdown of singular meaningful stories associated with place. Tying Urry's different mobilities, De Souza e Silva's "hybrid space", and Meyrowitz' barrier breakdown together, I suggest narrative settings are increasingly defined and articulated

by various mobilities in hybrid space. But in order to tell meaningful narratives about ourselves, and understand those of others, we still have to locate actions and events as taking place somewhere…

Game and play are useful metaphors to understand the mobile character of narrative settings. Caillois makes a distinction between *paidia* (spontaneous, impulsive, joyous, uncontrolled fantasy) and *ludus* (absorbing, rule-governed, for its own sake and amusement, involving skill and mastery). He sees them as two poles of a continuum (2001: 10; 27-35). This coincides with *play* and *game*. Moving *inside* virtual worlds like Bliin, with its own rules and definitions, has a structured game-like aspect. As we become *immersed* in Bliin, we construct, express and share our identities via the practice of 'self-publishing'. The game itself becomes a narrative setting. Due to their *pervasiveness*, the various games we are involved in become meaningful for our life as a whole. Moving *between* such worlds involves more freedom in defining and articulating what are meaningful settings for one's narrative identity. This can be called play.

The metaphor of the *game* can be applied to the construction of identities within virtual environments such as Bliin. The metaphor of *play* can be used to understand how games continue to shape our identities even outside of these games. This is not to say however that games are completely structured or real life completely free. I have tried to show how the convergence of virtual and real worlds create *hybrid worlds* that blur crude distinctions between *game* and *play*. It is an analytical starting point for ongoing research about the role of "the play-element in culture" (Huizinga 1955).

**Failing technologies**

Considering the idea(l) of convergence, what happens when technologies fail? Bliin's GPS positioning may not work due to environment (being inside, between high buildings, clouded sky). Mobile internet may not be available or expensive (in a foreign country). The application sometimes crashes. On simpler devices (non smart phones) it excludes running other applications in parallel. Batteries go dead. The user is then thrown into the 'former' mode of spatial experience. This is not simply a movement back to normal, but itself a reflective kind of mobility. The sudden sense of deprivation induces increased reflectivity about the technology-mediated ways we experience places, mobility and co-presence. Failure was in fact a great aid in writing this paper!

**Final thought**

When I tried out Bliin, I wondered whether it takes away some of the spontaneity and exploratory character in relating to place and other people? It may seem so. Bliin's location-based multimedia, tags, descriptions and comments pre-inscribe hitherto unknown places with other peoples' experiences. Bliin constantly makes us aware that almost every place is suffused with human experiences and stories. This collective sedimented *Erfahrung* may leave less room for a uniquely individual instant *Erlebnis*, to borrow Walter Benjamin's distinction. On second thought I became less sure. Other Bliin users offer surprising new perspectives of places, breaking open places thought to be known. Further, Bliin induces spontaneity by stimulating users to divert from fixed paths, routes and plans. As the Surinam food stall example shows, users let their mobility be guided by Bliin. Users unexpectedly stumble upon someone's *share* or somebody in the vicinity. De Sousa e Silva says of a similar locative game: "It is as if the game creates an imaginary playful layer that merges with the city space, connecting people who previously did not know one another via mobile technologies according to their movement in physical spaces." (De Souza e Silva 2006: 272). Moreover, an exciting sense of newness is reinforced by the 'double articulation' of locative media. Both its actual use, and an emergent discourse about the potential of location-based services, turn ordinary spatial experiences into extraordinary ones. Finally, as mentioned, Bliin adds a playful element of conquest. Playing Bliin is fun. Earth can be mapped all over again. Not geographically but in a 'geosophical' way, as J. K. Wright proposed (1947). According to Wright's original idea, earth consists of multiple *terrae incognitae*. Again, they are filled in and opened up by never-ending mobilities, and ongoing developments in mediated experience and expressions.

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# Web of Frames

*What are the webs good for?*

By Marton DEMETER

**After the appearance of cybernetics there are similar web-structured models of various scientific fields: psychology, neuroscience, computer science, sociology, anthropology, and philosophy have been made their own web-based theories. The 'web' itself became the scientific and cultural symbol of the 21th century. Developing it's structure, and constructing web-based models are both part of the normal science[1] and commercial innovation[2]. We are dying to understand this structure, and we want to develop it's working effectiveness: but what about *function*?**

This discussion studies the question „*What are the webs good for*" from three points of view:

1. We'll try to step out from the 2D idea of the web. With the 3D reconstruction of the web's structure we'll ask how webs relate to the world outside itself. This 3D model will show, that webs are functioning intelligently[3] only if they were referred to the reality outside the web.
2. We'll call this function *fishing*. In this discussion, fishing refers to the fact, that we use the web for *catching knowledge from the world*. That is to say: we throw out the web to reality[4].
3. We'll choose human vision and imaging: and we will find them being *fishing activities.* It's not only that vision is our most important process for catching knowledge, but our visual system certainly has the web's structure.

## The 2D concept of webs and networks

Different disciplines use different terms to the *structure* of webs: 'what are the *points of junction'*, and 'what kind of *connections* are there between these points' they ask[5]. How this structure works? But we have to see: it's all about the structure, and any intelligent structure serves some function.

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[1] We use the term 'normal science' accoring to Thomas Kuhn. In this case, normal science refers to the paradigms using web-based models as a generally accepted method. For example: *artificial neuron networks* {Hinton and Anderson (1981.); Rumelhart and McClelland (1986.)}, *PDP models* { Touretzky and Hinton (1988.); Nelson, Thagard and Hardy (1994.)}; McMaugham and Morris, (1987.), Kohonen (1978.), *AI* (f.e.: Newell, 1983.), *logics* (Johnson – Laird), *sociology*, - models against the hierarchic structures - : { Naisbitt, 1982.; Ferguson, 1980. ; Lipnack & Stamps 1980., 1982. ;Van de Bogart, 1981. ; Hine, 1977.}

[2] Needless to say, that today, when we say 'web', we usually mean The Web. About the commercial developements for the Internet see Locke (2000.); Weinberger (2000.)

[3] We don's say, that all the web-builders are intelligent. In case of the 'natural webs' – like cobwebs – we, humans are who give function to the web as an intelligent function; the spider itself just *makes use of* the web.

[4] Doesn't matter if we use the term 'net'; 'web' or 'network' in this discussion. We'll see later, that web/net and network have the same *structure*, and we can add the same *function* to them.

[5] They often call the points of junction, 'units'. Depending on the kind of the web, units can be terms, concepts, physical entities, information boxes, neurons, habits, terminals etc. As we can see, units are the smallest parts the model *works with.* Units might as well be complex systems, when the model of the web works with them as units. The mission of this paper is not to analyze the interpretations of 'units' and 'connections' in different models. We'll see, that these differences won't influence on the fact that these models are two dimensional ones. When they propound the problem of the third dimension, it refers to the fact that networks can be connected to each other (for example: when a cognitive network connects to a neuronal network). From our point of view, it's no use calling it dimension three, because:

This discussion calls structure based models as *two dimensional:* it refers to their 2D interpretation about the structure of webs. Developing web's structure - according to a two-dimensional interpretation – is to make the connections faster, and to make the process distributed. The purpose of these kind of development is the fastest flow[6](in case of optical medium: the velocity of light), and the greatest number of units[7].

Why could we call structure based web models two dimensionals? Because of their elements, which are just points(units) and lines (connections). Traffic, transport, service, communication can happen *through the lines* only. It's like a network of roads: you can't turn off the road. When you want to reach a unit ( a station) by a different or faster route, you'll have to build a new road (a new connection). The more the number of the connections, the thicker the web will be. The *intelligence* of the 2D-based web models is the *control*: in order to increase the flow (traffic, transport, service, communication) within the network, and, on the other hand, to prevent flow outside the network. Without this duality, there's no point in building webs.

World is unfathomable *per se*. There are infinite number of potential aspects and (information)sources. All system - with limited capacity – have to select, eleminate and categorize from the sources. All these operations are necessery for perception – and *they can be controlled by the mesh of the web*. But, for this, we have to know *what* we want to catch , and *what* we want to let through from the unfathomable world.

The essence of the webs's 2D models are, briefly, that they are interpreting the web's structure and system within the network. This is the point of view of a 2D-visioned organism, which tries to understand the surface of a globe it's walking on. 3D reconstruction of webs means – in our case - , that we'll try to explain the function of webs in respect to the world outside the web.

**The 3D reconstruction of webs – the problem of function**

We ask our old question: *what are the webs good for*? Why is its structure so effective, and for what? The answer is simple: both the natural and the artificial webs have dual function:

1. to *catch* something AND
2. to *let* something *through.*

There is no separation between web/net and network from this point of view. Network of roads/canals is a construction of junction points and connections, and the same is true to the Internet. Networks

1. *catch* the traffic. Flow can be happened only across the connections[8]. We could calculate only those information and knowledge which have been catched by the net.
2. prevent traffic outside the network. When we want to run, ply or communicate, we neglect those parts of the reality which are outside the web structure[9]. Information, knowledge of this kind will *flow through* the web.

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1. the connection of two dimensional formations results only more complex, but still two dimensional formation. It's still can be projected to 2D plane. Connections are still unit-to-unit connections, the difference is simply that units won't be in the same (two dimensional) network.
2. connected networks don't meet the requirements of being three dimensional *per se*: they are still interpreting the web *within* the web or network. They are not referring to the 'world outside the web'. According to Marr, we could call them 2.5 dimensional models – but, unfortunatelly, explanation of 'half dimension' is beyond our capacity.

[6] There can be other purposes, like increasing the number of connections. It's still a two dimensional goal, and follows the principle of *thick weave*.

[7] Surfing the Net often seems like indiscriminate information consumption. 2D models usually make *misrepresentations* of the fishing users. We'll see later – in connection with vision – that the fishing agent selects different kinds of webs depending on what she wants to catch.

[8] It's a very important condition. But it characterizes the *systems*, not the world! We can't explain - for example – the organic networks, like the nervous or the venous system without this condition.

The 3D interpretation of net-structure is focused on the function. It follows from the function, that

1. the finest meshed net + 1 is a web no more. Now it's united surface that catches everything, and lets nothing out. Without control walls, a network of roads like this leads to uncontolled, open space.
2. the widest meshed net - 1 is a web no more. Now it lets everything out, and catches nothing. It ceased to be distributed, (hence, to be network), since you couldn't reach a unit by different ways.

The number of the possibilities (between the situation 1. and 2. above) is infinite, just like the number of the potential web based applications. What we do with nets, is fishing: and it could only happen when we catch something, and let something through. Hence the functions of webs are:

1. to catch something - *expect everything or nothing* and
2. to let something through - *expect everything or nothing.*

From what minimal number of units and connections we call a structure web, is a question of agreement. The structure of two units plus a connection between them is surely not a web. But – according to the 3D functional model – a structure of three units and three connections - which is a triangle – could be called 'web'. We can catch with it – for example - squeres with the relevant geometric parameters[10]. Briefly, we see again that 3D reconstruction deals with structure *and* with function.

The mesh of the net is very important. Fine meshed nets catch a lot – wide meshed nets let a lot through. Fine meshed nets let few through – wide meshed nets catch few. What kind of web would you use when you go for fishing? It depends on *what* do you want to catch, and *from where*.

Fishing for fish, or *fishing for knowledge* – the difference is not too much. What kind of web will you use?

Popper says in '*Logik der Forschung': „theory is net which we throw out for catching the world: to racionalize, to explain, to rule over it. We are engaged on weaving the tissue of the net finer*[11]*"*

We'll show, that fishing for *knowledge of any kind* needs different types of web. The 'finer the better' could not be a winner strategy in any case. Fine meshed net often catches too much information – and it could slow down, even paralyze the fishing activity. We have to ask again: what do we want to catch, what do we want to let through?

**Vision and imaging as a fishing activity**

Visual processes use webs for catching knowledge. We choose *visual fishing*, because

- vision is the most important information-processing method of the human race.

- vision is a perfect example for modeling the web-strucure and the web-function in practice, since low ordered vision is certainly PDP method.

[9] Or, we could try to connect those parts to the network. As soon as it happens, those parts of the world become connected, two dimensional parts of the network system.
[10] We can say, that we expect for a network that any unit could be approached by different ways. Our triangle will meet this requirement. It's no use thinking about minimal structures too long: of course both natural and artificial webs are mostly complex ones.
[11] My translation from the hungarian version. {*Popper, Karl: a tudományos kutatás logikája, p. 73.* } We could agree with Popper *only when we believe in the cumulation of knowledge*, as Popper does. In fact, we'll show that 'the thicker the better' is often untrue.

Vision is an extraordinary successful way for *acquiring knowledge*, and for *increasing the success/failure rate of a visually ordered activity/behaviour*. In this discussion we only have chance to briefly present the first and the most simple stage of the visual system – the fishing of the retinotopic mapping. What kind of web the retina is fishing with, and what is this web good for?

On the *fovea centralis*, which is responsible for sharp center vision, there is a higher concentration of retinal cone fotoreceptors than in the *extrafoveal areas*. It's a really *fine meshed net* versus a *wider meshed net*. It's the visual fisherman's *attention* which keeps the important parts of the world on the fovea. How visual webs work? The fine meshed net of the fovea catches even planktons from the water of reality, when extrafoveal net catches only the sharks. The mesh of the net is very important during visual fishing.

On extrafoveal areas colour perception and density are quite small in consequence of the structure of the extrafoveal web. Nevertheless,with this wide meshed net we can perceive motion objects very fast – because of our fast system, *our wide meshed net* – which doesn't mind the objects's colour or shape when they are flying towards our head. All information/knowledge we need is direction for a fast motoric response. A finer meshed net might obviously hold up the process.

Information flow via PDP method during lower-ordered vision. There are different pathways including parvo - and magnocellular pathways. They use different kind of web, because of the different kinds of knowledge they are fishing for. M-web is a 'wide meshed net system', because it catches moving objects. It's easy to get caught for a moving object, even when the net is wide meshed. The P-web, on the other hand, is a fine-net-system. It'll catch knowledge about colour, form etc., even when the object doesn't move[12].

Of course it's the top-down strategy of the higher-ordered striate and extrastriate system which'll lead us to perception, but presenting its structure and acivity is far more complex than it could be done in this discussion. But, we could say, that without lower-ordered PDP methods, higher-ordered systems are effectiveless[13].

We know well, that the result of retinotopic imaging is not a photo-like picture in the cortex. The proportion of the finer meshed net - the retina – is much bigger than it's physical size demands it. Briefly, we could imagine the complex retinotopical web following the *motor homunculus*'s example.

What've been told about vision could be told about imaging. The main problem of photographic imaging – often named mechanical – is, that it's web has constant mesh. It causes constant resolution on the surface of the photograph. The photographers try to manipulate the *attention* with various methods: shadowing/lighting, sharping/bluring etc., because they can't use the mesh of the web!

The question is what the photo and the movie[14] let through? The parts of the world the photographer/cinematographer doesn't care about. What do they catch? The information they want to work with. But it's not as simple as it seems, since

- On the one hand, mechanical images are *over-determinated*. We can't manipulate the mesh of the web *directly*. Practically, every frame includes part of the world we didn't want to catch.

[12] Just think of the difference between the receptive fields of M-cells and P-cells.
[13] The retina's brief 3D web-based model explains the simpliest part of the hypercomplex visual system. We choose it by practical reason. But it's just the begining: far more interesting models could have been constructed in connection with the extrastriate areas: the 3D web-based model of the Fusiform Face Area (FFA), the Lateral Occipital Complex (LOC), the Ventral Intraparietal Area (VIP), the Parahippocampal Place Area (PPA), the Superior Temporal Sulcus (STS), the Kinetic Occipital Area (KO), or the Extrastriate Body Area (EBA) can put the matter of 3D visual web in a new light. Fishing via ventral and dorsal pathway is another exciting part. But, of course, it would break up the range of this discussion.
[14] Here, on 'movie', we mean 'live action cinema'.

- On the other hand, they ar *under-determinated*: there is a maximum resolution of the 'materia' – we couldn't catch everything we want to. The effectivity of our fishing depends on the final materia[15], too.

What we gain with digital tools and applications is the almost infinite *freedom of fishing*. It's the multi-layer and free-transform that allows us weaving our web the way we want to. We can determinate the resolution(s) of the stage free, and we can applicate various webs on the same picture or frame[16]. Where we want to emphasize – we use fine meshed net, and we catch a lot from reality. Where we want to hide, reality could flow mysteriously[17] across our wide meshed net..

**Summary**

The mission of this discussion is to present a 3D way of looking at webs. Our most important question was 'what are the webs good for', and it leads to the question of their *functions*. As we've seen, the structure of the web could be examined with a limited 2D model, which describes web with *only* its parts: with units and connections. But if we want to know why could be web based models so popular today, we have to examine its functions via 3D modeling – namely, we have to explain the *function* of webs *in respect to the world outside the web*.

Webs are tools for fishing knowledge from the directly unfathomable reality. It depends on the *mesh* of the web what'll be *catched*, and what'll be let *through*. We are to make *decisions* on weaving in respect to *what* we want to catch. It could be seen by the example of vision and imaging; and we've seen that the 'finer the better' theory is untrue. It leads to the conjecture that we have to take these points of view into account at any kind of fishing activities. Obtaining knowledge is a categhorical process: we have to know *what kind of information* is needed, and *how much* can be processed efficiently. Our desired target could only be caught by the suitable web. When we forget the function, and care about only the structure, then sensations of the world would flow through our web – and our senses and intelligence - inarticulately.

[15] In this case, 'final materia' is a kind of surface we want to present the results of our fishing activity – for example: printouts of different sizes, TV-screens, LED-walls etc.
[16] And we could attack the theories of 'pictoral objectivity' and 'pictoral reality' from this position, too.
[17] Painting has always had this freedom. What are the backgrounds of Caravaggio if not wide meshed nets? And what kind of web were used by Malevich?

# Knowledge Communication in the Age of Converging Tools and Modes of Use

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In addition to some interesting suggestions on science communication, researches on mobile communication (Bedő, Laki-Palló, Nyíri) have positioned scientific knowledge in the mobile theme by exploring the solutions of knowledge transfer applied on the mobile platform, and the characteristics of knowledge organisation and transfer in these. In effect, all these analyses have not added to the results of former and contemporary research in communication philosophy on the impact of the computer and the Internet on the production and transfer of scientific knowledge (Nyíri, Laki-Palló, Kondor within the COMMUNICATIONS IN THE 21ST CENTURY project, the Hungarian Academy of Sciences project "the system of science in the 21th century", as well as the substantial literature on the "science and Internet" theme). The convergence of communication, a much cited development of the past half decade, has also brought about a change with respect to the tools themselves: mobile phones have become a more integral part of the networks of knowledge communication as result of their improved storage and data transfer capacities. However, a more significant outcome was yielded by another branch of convergence, namely tool use, and in particular the widespread use of media type user facilities. Given the parallel process of the medialisation of scientific knowledge transfer and science representation, communication tools capable of offering medial content provision now offer a real platform for science, which has become increasingly enjoyable and sought as a media product. In the context of convergence, the future of scientific content is surely decisively influenced by two aspects of the issue: On one hand, to what extent do the routines of tool use and the hectic nature of tool innovation (namely that the available capacities of devices and services are shaped by very short term marketing logic) ensure the adequate circumstances for the stability and requirement of long-term thinking that characterises knowledge acquisition? On the other hand, to what extent are the creators and mediators of scientific content able to produce a medial knowledge product? Finally, all this raises the question as to what extent do knowledge products made for current media use preserve the authority and credit of scientific knowledge, and how does this affect the traditional cultivation and institutional system of science and knowledge transfer?

Katalin Feher

# Metaphors and Visual Associations of Virtual Reality

## Abstract

Digital media brought spectacular developments in the 90's: the World Wide Web and an innovative simulation-technology, Virtual Reality appeared. The two inventions meant a new vision about the future with numerous metaphors and great enthusiasm. It seemed, at the time, we were very close to the possibility of a new 4D world with the highest levels of manipulation. Today, these ideas mean other constructions: many of which help us manage the rationalization of the new media and not mainly its mystification.

New generations live together with the digital media and have their own online style of living, so earlier metaphors and visions have gained new meanings for them. Or have they? My hypothesis is that earlier metaphors give us a certain amount of freedom to reinterpret the phenomena of the new media. While the virtual environment becomes more and more real, we can analyse the earlier metaphors again.

To control my hypothesis I conducted empirical research about the interpretation of metaphors of virtual reality with the new generations in Hungary and with a control group in the USA as well. The results have shown that the novelty of digital media is measurable, but the interaction of virtual and real realities determine user's attitudes. An exciting result follows as a consequence: digital virtual realty gives associations and interpretations to general meanings of virtual reality, which may range from a dream to a journey.

## Thesis

### Introduction

The term "virtual reality" or rather the „virtual" attribute became an idiom. Earlier, in the 90's, this term meant a possibility for computerized 4D and reality simulations. Today the meaning of this label is the reality that surrounds us. The digital world combines with the non-digital reality and an ever growing common section takes shape.

When I began my earlier research, mass media talked about a virtual revolution and a synthetic future. This revolution is going on in its own continuity along generations and target audiences. The symptoms of this change are observable in the digital generation, who know the latest digital widgets and these inventions determine their evolving brand preferences or reality experiences.

From this consideration, I made a survey in 2004 with students in Hungary, at the College of Dunaujvaros. My aim was to conduct research in a responsive age-group about digitalization, among students who use this computerized environment. In 2006, I repeated this survey at the University of Georgia, USA – complemented with digital widgets that appeared ever since. These two surveys show the virtual as actual environments, a conformation of the new media generation.

### Premises

Two spheres belong to virtual reality: 1) a wider, philosophical sense 2) and a narrower, a technical-digital one. Today this idiom appears in the mass media in determinable contexts with special labels and metaphors. Metaphors are of particular importance in this respect because they substitute the experience to help understand and to counteract the paradox.

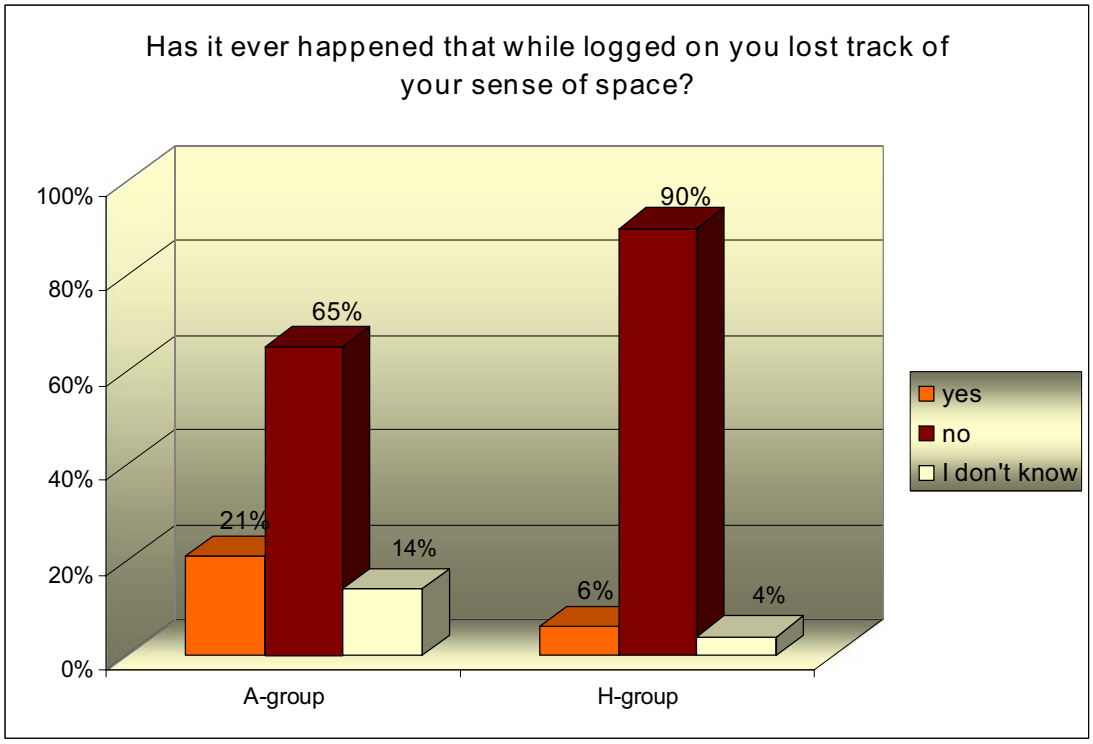
Earlier, I studied these metaphors and theirs contexts about the digital world in mass media and I grew interested in the reaction of new generations.

## Method, sampling and hypothesis

Both surveys were in a questionnaire form to research knowledge, beliefs, opinions and attitudes about virtual reality (VR). Regressors were sex, age, studies, courses on VR, computer/internet/simulator usage and technical determinism. Questions concerned information sources, contexts, visual associations, definitions, and metaphors. My aim was to prevent the metaphor-expression from influencing the informants, thus, there were control questions later on. Before the second survey, I released the questionnaire through iPod and podcasting as a new and current entertainment electronics tool in the U.S. Because of American culture, in the second survey, I also used "Halloween" as an association item to "virtual". The sampling was 150-150 students, the rate of sex was similar, Hungarian students were younger (mainly 19-20, American students mostly 21-22) and they belonged to various departments from IT to Communications. At the University of Georgia, there is a special opportunity, the New Media Institute, where 34% of informants can learn about new media in theory and practise in some courses. In spite of this fact, students had heard about virtual reality in similar proportions.
The SPSS statistics software was used for induction, and I took as a basis the frequency, mean and standard deviations for hypothesis testing and correlation analysis.
The difference in my hypotheses between the two surveys were the distinctions in terms of time and space, and the different ways to access technology in the two cultures. Both samples denote the new generation using new media (computer, internet), mobil communication tools (cell phone, mp3 player), videogames – and so on. This is a lifestyle, similar to that of their parents having a television, and this is a fact that determines their life. They have different access to technology, however. American students (henceforth A-group) possess more intensive contact with new media since most of them have their own laptops, iPods and use wireless Internet, whilst the Hungarian students (henceforth H-group) cannot get at the Internet every day), so virtual reality means reality first in the second survey.

## The new generations in a new time and space

Time and space yield to new interpretations on the grounds of internet/mobil communication: their objective realities are not constrained, but communicative/interactive situations construct the common virtual-real spatiotemporal. (Jones 2002: 10) According to the sampling, the time factor turns virtual, particularly so in above 70% of informants who may forget the time or rather the progress of time, namely the time of virtual reality (digital life time or subjective time) which underplayed the time of real reality (objective time). The results correlate with the foregoing hypothesis: near 90% of the American students feel real the time of their digital environment (versus 70% among the Hungarian participants). This hypothesis is also confirmed in the space-perception , which is supposedly connected with regular use and their online lifestyle. While the space is almost entirely real for the H-group, among the members of the A-group, 21% can forget the place where they are.



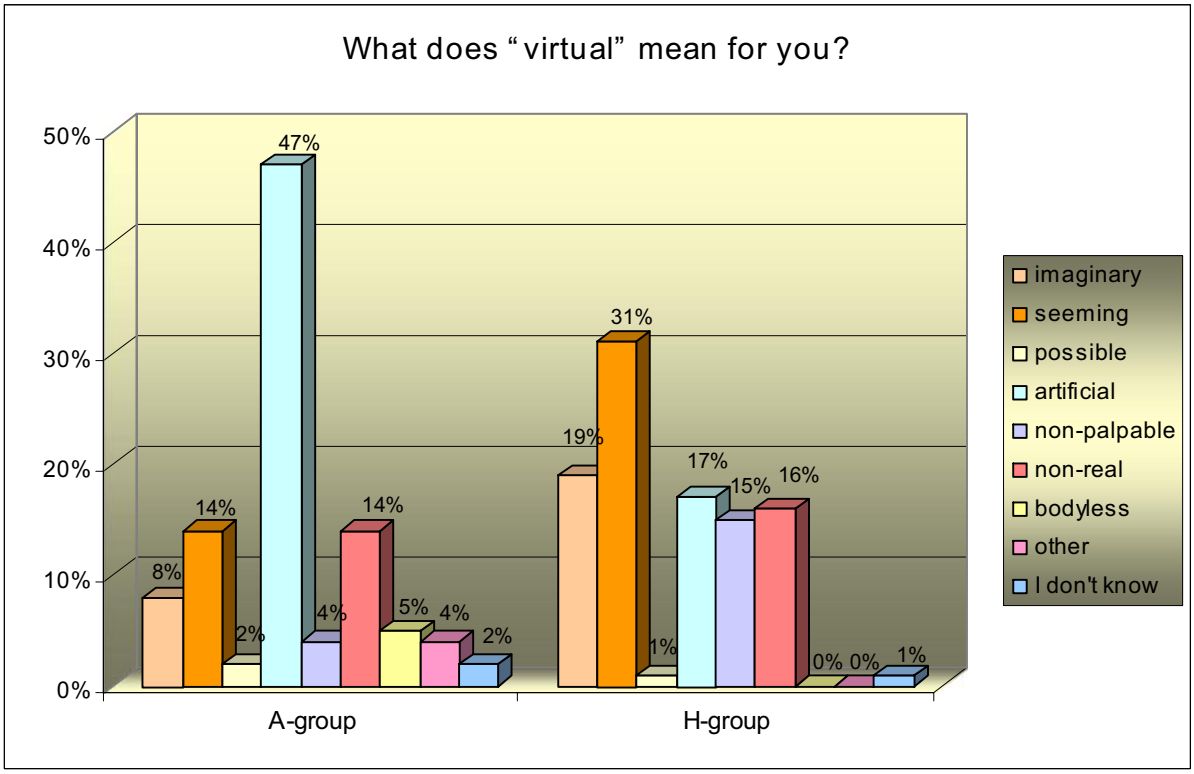

The difference between the two surveys shows changes in the perception of time and space because of new technology. The speed of the digital lifestyle and the information stream means a new sense of time and space, even though it is the human body that is in contact with the material world. This is exactly the case of difference between time and space perceptions: the physical presence with 5 senses gets more reality than time-telepresence[1]. Speed, first of all, is determined in terms of time (for example in the philosophies of Heidegger, Virilio, Baudrillard etc.). Moreover, space is also transformed because the tools of digital technology are composed of virtual software, and the contents are accessible on shared links instead of the external storages (e.g. CD, DVD, mp3 player). Finally the defencelessness of the (digital) technology is nearly 100% in the A-group2 in this new space-time. According to their opinion, our life and activities will be present online in the future (telework, e-learning, e-business, e-communities, virtual sexuality etc.). These results support McLuhan's technological determinism (1964) and Ebersole's the cultural media determinism (1995): we are predetermined for the mediatechnology of the future (Chandler, 2000).[3]

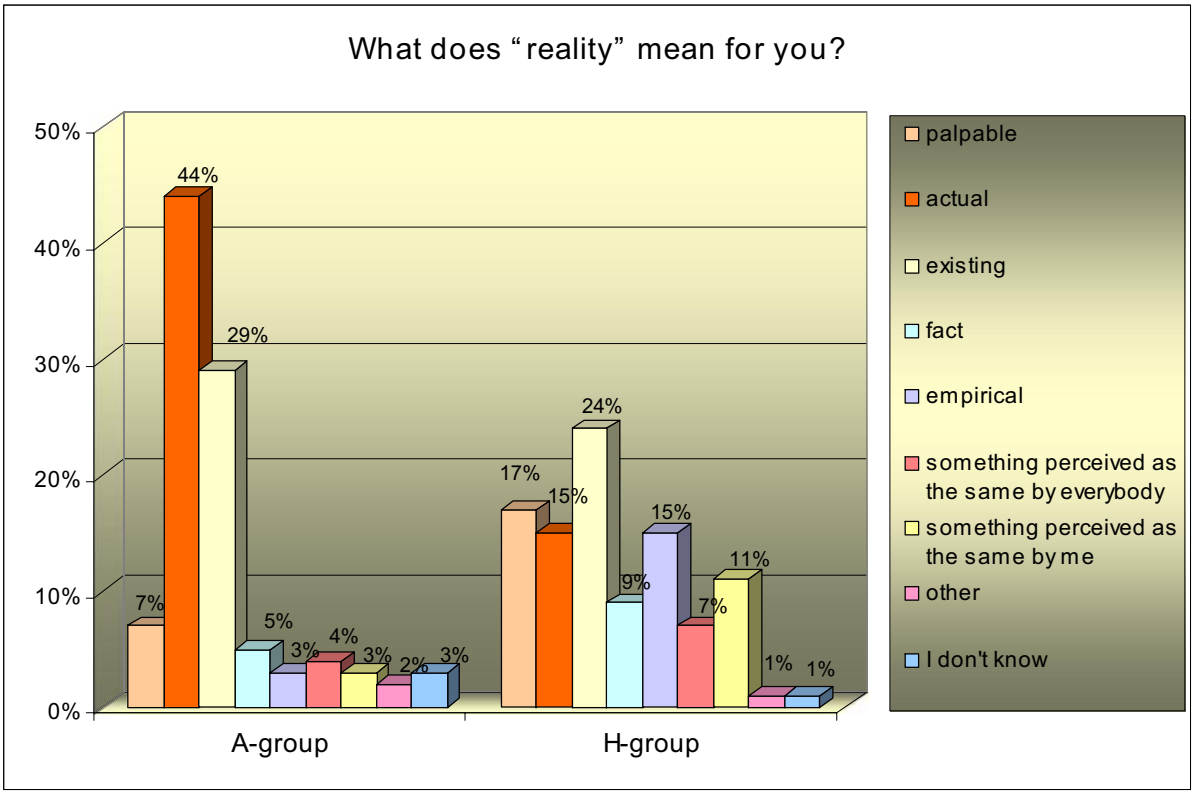
## Virtual or real?

In this survey, the most abstract problem was the difference and contact between the 'real" and the "virtual". What do these mean for new generations? How can the current new media technology influence this philosophical question? Which meanings will be articulated about "virtuality" and "reality"on the grounds of the dissimilar intensities of their online lifestyles?
As mentioned above, the A-group believe in the above technological and media determinism, so they characteristically equate "virtual" and "artificial". More physical tools belong to the, H-group, so the palpable attribute is more important. Although space is somewhat more substantial (over 65% and 90%), the same "bodyless" option did not come to the front. The

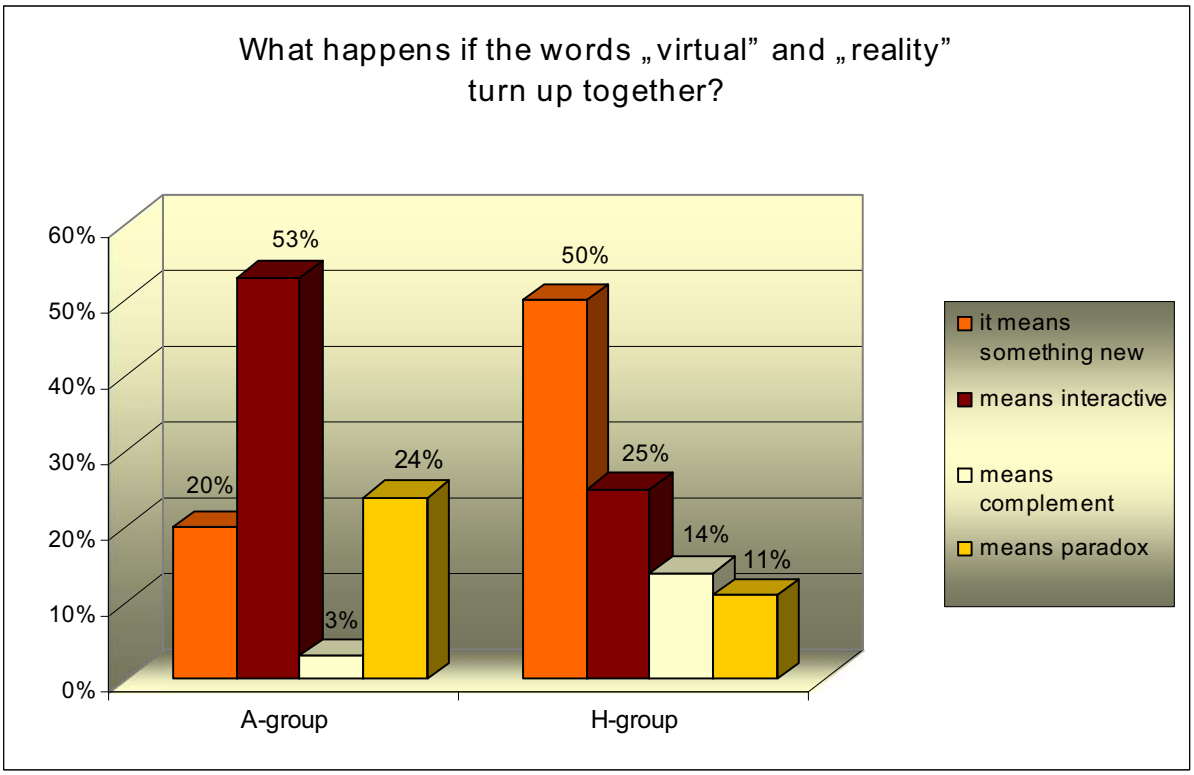
[1] Time-telepresence: somebody is present in time but not in space (e.g. videoconference).
[2] H-group: 68%
[3] Media determinism interpretation from new media environments.

"actual" and the "seeming" terms are very general and abstract, this may be the reason why these were marked. The two questions were very philosophical, but the contents of new media helped in giving answers.



The consequence of the two different interpretations are several adjunctions to the common meaning of "virtual reality". In the A-group, response "means paradox" is on the second place while it is the last one in the H-group. This is very exciting because it indicates the convergence of "virtual" and "reality". "It means something new" and "means interactive", which implies the metaphorical meaning often stays foremost. Tentatively, one could suggest that in terms of time and space there are parallelly existing "virtuality" and "reality", so the real and non-real are in interaction, they can interpret each other.




Jaron Lanier[4], artist and programmer, was the godfather of VR and did not understand the success of the term: only the computer animation needed a new name for immersion and he used "VR". But the term has continued to live a life of its own – without promotion or marketing. Lanier's explanation is from the contradiction of two words "virtual" and "reality" because VR brings on philosophical questions, we can use it for several phenomena. Finally, the solution comes from metaphorical interpretation.

## Definitions and association of virtual reality

From the A-group 95%, and 87% from the H-group have heard about virtual reality (VR), the next section covers theirs answers. The questionnaire gives 35 options for "Which of the following words can be associated with virtual reality?" question, these were: art, computer, computer mediated communications, computers and humans, copy, cyber space, cybernetics, dream, electronic book, experiences, fantasy, files and folders, hallucination, hologram, hypermedia, hyper-reality, icons on the desktop, illusion, immersive, internet, iPod, journal, manipulation, meditation, mind of children, model(s), novel, podcasting, poem, radio, sci-fi, simulation, telepresence, television, videoconference.[5] Other answers were also possible.

[4] LANIER, J. (1999). *A techno-metaphor with a life of its own.* http://www.wholeearthmag.com/ArticleBin/268.html

[5] In the first survey "iPod" and "podcasting" did not appear.

Over 70% of the H-group marked "simulation" and "cyber space", and "illusion", "fantasy", "cyber space" and "dream". "Poem", "radio", "experiences" and "novel" were not much less marked either, by under 10%. Similarly, the A-group voted mainly for "simulation" (95%) and above 70% were "hypermedia", "computer", "cyber space", "hyper reality", "experiences" and "illusion". All of the answers were signed between 10% and 20%: "telepresence", "poem", "iPod" (podcasting was only 22%)) and the "radio". Both groups gave meanings such as "sci-fi", "computers and humans", "internet" and "manipulation". It is interesting to note that in the primary results, there is a mixture of the wider sense, a philosophical, and narrower, technical-digital, VR meanings – which verified the metaphorical versatility. The words that are used in everyday language and are used in everyday life (internet etc.) give meaning. Besides determinative information sources about VR, television, movies[6] and the Internet (the other mass media are not considerable) were important to the "simulation" meaning. This is intensified with videogames[7], gaming rooms, amusement parks, programs and interactive museums in the A-group. Additional information to the results is the two different approaches: the H-group relied on informatics (above 50%), but group A on show-business (above 70%). The Internet ended up on 20% in either case, similarly to everyday meanings. So the wider and narrower interpretations combine and show a parallel.

"Which pictures can be associated with virtual reality?", this was an assotiation-question for pictures. The absolute winner in both surveys was the next picture that has an immersive-association, a feedback to a wider meaning of VR:

The H-group's associations also included the magical sphere, drugs and surfing:

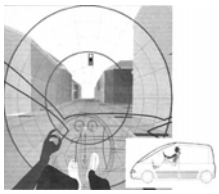


In the A-group, surfing and the UFO in a window-metaphor


[6] Mainly: Matrix, Minority Report and 13th Floor.
[7] E.g. wargames.

The pictorial association were not abstract only, but also denoted a narrow VR meaning: computerized tools, concrete applications. Correspondingly, the majority of informants in both groups marked the next photo with the HMD[8]:

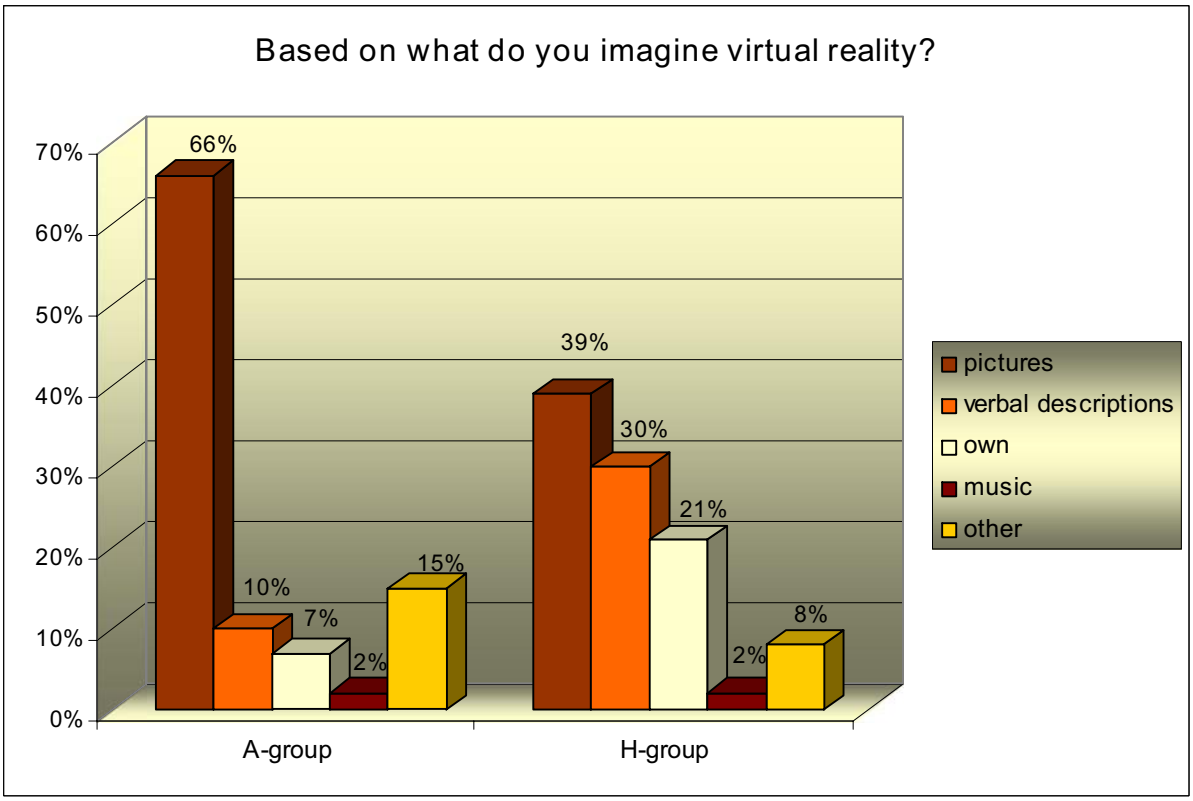
A-group's choice referred the "simulation" meaning (above):



H-group in turn associated it with the Matrix movie:

The visual association confirms the parallel VR-meanings (philosophical and technological), and can interpret each other. The A-group relies upon visual information, especially due to their more computerized lifestyle (videogames etc.). The verbal descriptions are mainly presentation of scopes, but visions and „oracles" appear also (in the H-group this has a higher rate: 24%, in A-group only 10%).

[8] Head mounted display, one of the most familiar applications for VR.



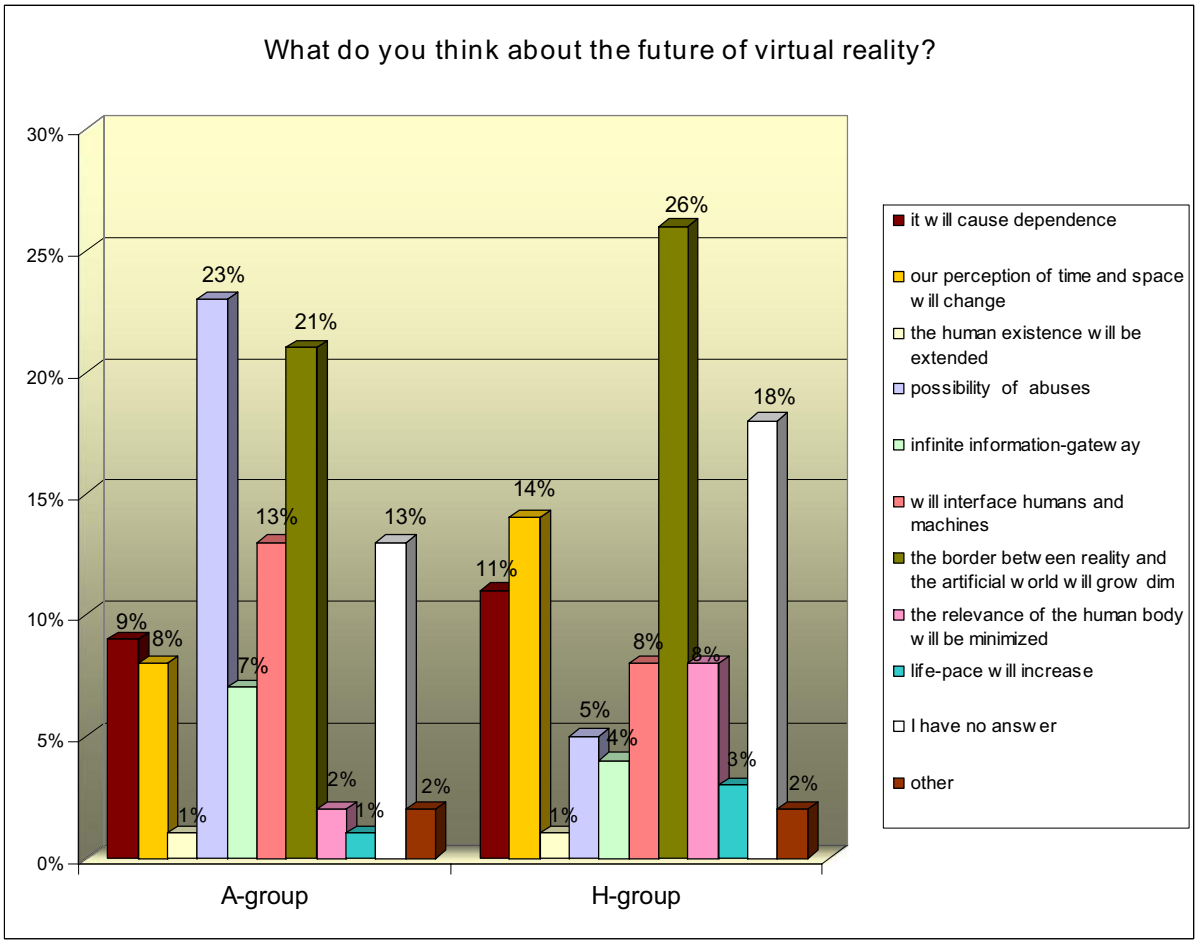

As a summary, student-informants gave definitions for VR. Here, the computerized/artificial world, so the narrower VR-meaning comes to the front. As expected for the A-group, the artificial worlds and the simulation, while for the H-group the computer-interface and the simulation, were the interpretations of VR.

## Metaphors and attitudes

The survey did not use the „metaphor" or metaphorical" terms deliberately, instead several metaphors were included together with non metaphorical words in the wordlists and in definition-questions. The results of the two ground metaphors were *hologram* and *matrix*. The A-group marked hologram (over 50%), as well as (video)game, matrix, dream and journey. They did not vote for virus, colony, plug and hurricane. H-group: matrix (above 40%), and hologram, dream, (video)game, copy/Xerox. Among all the metaphors, source and guidebook were the least marked. With standard deviation, other metaphors were mainly: deja vu, nomad, speed, agent, Halloween, highway, sea, God, cloud, window, zone, mirror, theatre, super brain, global village, time machine, drug, net, colony and black hole.

The informants also had to declare their own roles in a virtual space and time. "Consciousness-expansion" was the guiding description in both samples. Further markings in A-group are participant observation and immortality; H-group: pilot and errant. The attitude is determined: the "consciousness-expansion" means a positive impression and usefulness. In the A-group the students are more objective and keep a distance because of the systematic usage of new media, and also because access to an infinite amount of content has become a regular, everyday experience for then. Students of the H-group felt this experience to be more subjective, so they used other metaphors. Pilot and errant imply the process, the other metaphor "journey" and the decisions on "cross-roads" (e.g. links on the Internet).

Even though the objective-subjective approaches and attitudes are typical, half of the students (in A- and H-group) can not imagine that they could become addicts. The results are similar in the other two cases: people who personate themselves as others in virtual reality and the virtual role-plays. The confidence and it's dearth about the new media cohere these viewpoints: the A-group accent the abuses – not accident the objectivity. Contrarily the subjective (and immersive) experiences give more objective answers and a less harmful image (e.g. the border between reality and the artificial world will grow dim). Finally these unsteadinesses become unambiguous: only half of the students are interested in virtual reality. It is useful, new and exciting, but sometimes boring, primitive and dangerous, and they cannot afford it more than reality and it also requires special technological knowledge.




## Summary

The hypothesis was watertight: there are a lot of meaning-overlaps and geographical differences, on the other hand can show the convergence of virtuality and reality – and this is a decisive fact for attitudes. Some approaches are similar in this new generation (e.g. visual association, metaphors, but other viewpoints are different (e.g. usage versus dangerous attribute).

The new technology, the new media determines the new generation with its online lifestyle and attitudes. This is the narrow meaning of VR, the new media. Through its associations the wider, philosophical VR (e.g. dream, journey, game metaphors) is realised. The

rationalization is from science and everyday practise, but sci-fi, movies and several other factors also give it a higher level of prestige.

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Draft Version (12/07/2007)

# The Second "Great Transformation"?

## Introduction

The commercialization process of labor in the first half of the 19th century in England (preceded by the commodification of land and money) transformed the capitalist economy into a capitalist society by deregulating labor and extending market principles to it. Austro-Hungarian scholar Karl Polanyi analyzed this process in depth in his famous book "The Great Transformation" (1944).[1]

At present, we are witnesses of a process not less important for our lives: The commercialization and commodification of culture. By a well-organized interplay of technology and law, contemporary Digital Information and Communication Technologies (DICT) allow for a worldwide extension of the market and give room to capital investment in a new field: in this part of human culture that can be digitized. Mobile communication technologies enable the commercialization of talking to others nearly without restrictions on space and time; digital audio, photo- and video devices allow reifying an even broader range of human activities: Singing, writing, performing music, doing science, producing software, and creating photos, paintings or movies by freezing and unfreezing those activities according to our needs. Intellectual Property Rights, laws and technologies of copy protection transform information goods into genuine commodities. Finally, the Internet has become the global market place to sell, buy and distribute them, a market that represents in many countries already a volume around 5 to 10 per cent of the Gross Domestic Product.

The paper[2] gives a critical appraisal of this development within a framework of political economics.

## Goods and Services, Use-Value and Exchange-Value

To understand what is going on in the so-called information society of our time we should clarify the kind of goods and services that are produced, distributed and consumed via DICT. To perform this task we go back to the basics: Let us start elementarily with the notion of "useful things". Useful things have many attributes, and we can therefore use them in many ways - more or less independent of the social structure they are in. The usefulness of a thing makes it a use-value, because by its intrinsic characteristics it can satisfy some human need, either real or imaginary, maybe positive or negative for anybody. Although elementary, the concept of a useful thing is not trivial, because the notion of usefulness is rather tricky. This notion in fact reflects the complex cobweb of the society in question. What is useful in one society can become useless in another one or vice versa, therefore even a use-value does not represent an invariant over time. However, there is more to be told: Already Aristotle[3] stated that beyond the use-value of an object there is another kind of value, exchange-value, which marks the definition of a commodity up to now:

> "The one (i.e. use-value P.F.) is peculiar to the object as such, the other (i.e. exchange-value P.F.) is not, as a sandal which may be worn, and is also exchangeable. Both are uses of the sandal, for even he who exchanges the sandal for the money or food he is in want of, makes use of the sandal as a sandal. But not in its natural way. For it has not been made for the sake of being exchanged. "

[1] German Version: Karl Polanyi, The Great Transformation, Politische und ökonomische Ursprünge von Gesellschaften und Wirtschaftssystemen, suhrkampf taschenbuch wissenschaft 260, Suhrkamp Taschenbuch Verlag, Deutsche Rechte 1977 Europa Verlag GesmbH Wien 1978.

[2] This paper is a modified version of my publication "Commodification, information, value and profit", in: Poiesis & Praxis: International Journal of Technology Assessment and Ethics of Science Publisher: Springer-Verlag GmbH, ISSN: 1615-6609 (Paper) 1615-6617 (Online) 2006.

[3] Aristotle, "De Rep." l. i. c. 9. see also http://www.econlib.org/library/YPDBooks/Marx/mrxCpANotes.html, footnote 47.

More than 2000 years later, in 1776, Adam Smith repeated Aristotle's distinction, this time on the level of the value of an object:[4]

> "The word value, it is to be observed, has two different meanings, and sometimes expresses the utility of some particular object, and sometimes the power of purchasing other goods which the possession of that object conveys. The one may be called 'value in use'; the other, 'value in exchange.'"

Marx used this source in the first volume of "Das Kapital", which begins with the following famous paragraph:[5]

> "The wealth of those societies in which the capitalist mode of production prevails, presents itself as 'an immense accumulation of commodities,' its unit being a single commodity. Our investigation must therefore begin with the analysis of a commodity."

The tacit assumption behind this definition of commodity is the assumption of materiality (Stofflichkeit). The commodity is reified or codified in a useful thing, an object. This useful thing is tangible, it has a certain lifetime, independent of the producer or consumer, it can be stored and resold. Examples are apples or computers.

In the contemporary market, we find other entities: There are also services. Within the framework of economic circulation, services are a rather strange animal. Although they represent use-values, we consume them at the time they are produced. They do not have any continuous and permanent existence inside or outside the market; they cannot be stored, or accumulated. Let us take express mail as an example: You will fail if you try to resell the service of the delivery of a letter. Alternatively, try to bring a haircut you have received at a coiffeur to the market again. Of course, you will fail. Nevertheless, in market economies, one can sell them once, and they are able to attract financial remuneration, but it is not possible to resell a service, you cannot invest it either. And strangely enough: Although services have become more and more important in the economy of our days (they account for more than two thirds in developed countries), it is still true that they do not directly contribute as such to economic growth. The growth of the service industries themselves has to rely on material products,[6] on commodities in the full meaning of the definition of classical political economists. If we assume (1) an economy as closed (without contact to the outside world, without exports or imports), if we (2) do not allow the economy to deplete resources (our economy should only be based on flows, not on stocks), and if (3) the economy would completely rely on services, such an economy could hardly survive for more than a few days. Because of the fundamental property of people being in need of material inputs as basic ingredients of their consumption, but also as the expansion and replacement of the production machinery is based on material products, people in such an economy will die of hunger earlier or later. Moreover, if they survive by miracle, they will have to face a shrinking economy up to the moment where the production facilities are completely worn out.

However, this restriction in their direct contribution to economic growth does not hinder services to provide us with important indirect effects: More educated people – education is another kind of service – are possibly more productive in their jobs than people who do not take advantage of education and training. The output of a service could also be a new technological principle of production, but it needs new machines to incorporate this invention.

Services are also able to enrich the range of consumption, and therefore the well-being of people. To express this case in the language of political economy: Services represent pure use-values. People may

[4] Adam Smith, The Inquiry into the Nature and Causes of the Wealth of Nations, Book 1, Chapter 4, 1776.
[5] See http://www.marxists.org/archive/marx/works/1867-c1/ch01.htm#S1.
[6] Marx called these material products "surplus product" which is necessary for economic growth. In terms of labour time he called it "surplus labour". In money terms in a capitalist economy surplus labour is the basis for profits. This connection means in an economy in equilibrium: No growth – no profits. This equation works in both directions.

consume them. The characteristics and properties of people at work or at leisure time may be changed, they will be more skillful and/or they may have new options of consumption.

To summarize, the essential difference between material products and services is not their possibility bringing them to the market. One can buy and sell both kinds of use-values, and one can associate a price to both of them. Their basic difference is on the one hand, the ability of material products to contribute to the surplus product, to the surplus value and to the total amount of possible profits on the level of the aggregate economy, while on the other hand services are in principle not able to do so. The latter allow the vendor to earn profits, but only branches of material production provide the basis for them. If there would not be any service production in the economy, the profits in the branches of material production would be higher. In an economy with services, branches of material production "share" the possible profit with the service-producing capitalists. The level of relative prices allows for this sharing.

**Commercialization of Communication – Commodification of Information Goods**

After this excursion into the basics of political economics, let us come back to the contemporary information society. At the beginning of the 20th century, the German sociologists Ferdinand Tönnies and Max Weber have identified two different ideal characteristics ("Idealtypen") of the relations between human beings. They called them *community* ("Gemeinschaft") and *society* ("Gesellschaft"). Emotions and/or traditions create the links of social relationship (like in a tribe, the family or a military unit based on camaraderie). Communication in communities is direct, face-to-face. With the emergence of markets with anonymous interaction and the nation state based on impersonal law another type of human relations developed: Society. In societies, communication is based on „rationally motivated compromises" of human interests. It is indirect and no longer face-to-face. Technical innovations assisted the communication process, starting from Chappe's simple mechanic-optical telegraph to the wired telephone, from one-way communication via radio stations to heavy wireless communication devices of the sixties and seventies of the last century.

Nowadays, in the age of globalization, Digital Information and Communication Technologies provide the means of chatting worldwide. Direct face-to-face communication is extended to voice exchange, mediated by electronic devices. However, this new kind of communication comes at a certain price. *Commercialized* (mobile) communication via cell phones (one has to pay for) enhances traditional communication of people in the village and in the family. One can only use even free services of Voice over IP if one has the necessary technical devices at hand, like a PC, a laptop, and access to the Internet. From the point of view of a sociologist, one could say that the technologically mediated communication creates the possibility of new communities, this time no longer restricted to certain local spaces but on a global scale. For the first time in history people have the possibility selectively creating new topologies between them based on shared or mutually related interests. The distance between them shrinks to the need for dialing a cell phone number. Nevertheless, the market has become the impersonal and commercial link mediating personal communication between individuals or small groups of people. Economically speaking, this type of communication has been transformed into a service transferring speech from one location to the other in very short time, but one usually has to pay for it – speech is now commercialized within a global market.

This transformation seems to be on the same level of importance for society like the transformation of work into a marketable service. Karl Polanyi described this contradictious development in his famous book „The Great Transformation". He showed eloquently that after the active transformation of soil and money into commodities the commercialization of work opened the doors for a capitalist society. After half a century of protective measures of peasant work and the introduction of a kind of minimum wage by the Speenhamland System,[7] a "free" labor market emerged and allowed the

[7] The Speenhamland System was a method of giving relief to the poor, based on the price of bread and the number of children a man had. It further complicated the 1601 Elizabethan Poor Law because it allowed the able-bodied - those who were able to work - to draw on the poor rates. It was set up in the Berkshire village of Speen by local magistrates who held a meeting at the *Pelican Inn* on 6 May 1795. They felt that '*the present state of the poor law requires further assistance than has generally been given them*'. A series of bad harvests had put wheat in short supply and consequently the price of bread had risen sharply. The situation

capitalistic system to take off in a qualitatively new way. This structure became the prototype for the liberal economic policies applied later on in many parts of the world.

However, DICT can do much more. It is not only able to transform human speech, evidently an activity of human culture, into a commercial service activity. By an interesting interaction of technology and law it can create information goods which show all the properties of commodities, like apples or PCs. We call this process the commodification of essential parts of human culture.

**The Role of Technology**

The transformation from a volatile service/activity into a commodity can be described as the result of two technical steps (reification and reanimation), and a legal procedure, the creation and application of copyrights to prevent cheap copying.

*Reification*

In a first step, a special group of services, i.e. all human activities which can be technically described within the framework of the binary system (or any other system of numbers), can be reified with the help of digital media and digital computers. It is possible to codify flows of information with the help of DICT easily into a pattern of energy distribution, which can be stored in various material devices as stock of information, even at falling costs. Human activities (flows) are stored as stocks of information as if they were frozen into energy patterns of a carrier.

The process of reifying human activities is not completely new. It started with the human ability of painting and writing, with the invention of the printing press, photography and film fixed on paper or celluloid, and continued with tapes and records. Recently, the potential for storing information has grown once more with Compact Disks (CD) and Digital Video Disks (DVD).

*Reanimation*

Pop or classical concerts, theatre performances, actors posing for a movie, lectures, storytellers, but also the situation you have encountered in your holidays, the first steps of your child, are subject to digital reification on a carrier into stocks of information. However, in a second step the carrier can be used to reanimate the activities of the past. They – like in a time machine - can be moved into presence. The stocks are unfrozen and transformed into flows again, at a later point in time. You can enjoy a concert or a movie many years after its first performance.

*Copying*

Nevertheless, reification and reanimation are only parts of the potential of technology. While technology prepared the ground for commodification by creating the physical/energetic basis of a commodity, which therefore can be stored, re-sold and accumulated, it undermines the possibility of commodification at the same moment by the threat that the commodity can be copied and transferred via the Internet nearly without costs – an ideal pre-condition for a society where the distribution of information and knowledge of all kinds is freely possible and accessible to everybody.

However, under capitalistic conditions, there exists a particular interest not to choose such a framework. Private enterprises do not like that (in their language) “free riders” will show up. Free riders could copy the content and could resell it at a lower price or – in the extreme - will give it away free of charge. Anyway, the market would be undermined and could no longer be used for making proper profits.

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was made worse by the growing population and because of the French Wars. This meant that grain could not be imported from Europe. Things were so bad that famine was a distinct possibility and there was a fear among the ruling classes that the lower orders might be tempted to emulate the French, and revolt. There had been a spate of food riots in the spring of 1795. http://www.dialspace.dial.pipex.com/town/terrace/adw03/peel/poorlaw/speen.htm.

The process of commodification comes under the threat of being reverted. While the group of potential users of software and digital content will favor free riding, the management of the involved companies would like to see a situation that will enable them to sell the output at a proper price.

**The Role of Law**

To assure this, lawyers have invented particular regulation mechanisms: copyrights, patents, licenses, or generally speaking, Intellectual Property Rights. Enterprises called the Law for support. Copyright laws provide people who would like to do copies with the threat of a fine.8 Even if laws cannot really make copying (technically) impossible, they are sufficient to keep up the market for reified services. Under such preconditions, the commodification process is completed and will lead to the intended result: One can market new areas of human activities; one can open up new sources of exchange-value, and – most important – new sources of profit.

In fact, big and smaller business exploits two areas of commodification at once: There is a market for carriers of information, representing reified services, and a market for devices to bring them to life again, to reanimate and replay the past activities. In particular, this is true for all cultural activities where flows of information are involved, like talking, writing, developing software, doing research, inventing, singing, dancing, painting, designing, playing music, creating movies. The market has conquered everything. It is subject to further investigation to find out if commodification and commercialization have positive or negative effects.

**Final Remark**

It is interesting to observe that with the emergence of the information society the possible abundance of cultural activities and knowledge of human beings codified as information goods up to now did not lead to free and universal access for everybody, but to an artificially created shortage as if society would still be in the realm of material production.

[8] To assure the market of reified services, the European Union has issued two European Directives on copyright in the information society. The "Directive 2001/29/EG on the harmonisation of certain aspects of copyright and related rights in the information society" of 22 May 2001 contains several regulations on net security,8 while the "Directive 2004/48/EC of the European Parliament and of the Council on measures and procedures to ensure the enforcement of intellectual property rights" of 29 April 2004 intends to give a copyright owner proper instruments for the realisation of his rights. "Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 29 April 2006" (Directive 2004/48/EC, Art. 20, Par 1).

**"Search and the City:**
*A Comparative Analysis of WiFi Hotspots in New York and Budapest"*

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**Introduction**

In August 2004, on my second trip to Budapest – where I was to spend the next month on a grant from David Stark's Center on Organizational Innovation – I quickly learned about the efforts of the Hungarian Wireless Community (HuWiCo), a community wireless organization, and became a regular at Szóda, a colorfully-decorated, artsy wireless café-by-day and bar-by-night located near Central Synagogue, the world's second largest. My trip had gotten off to a rocky start -- complete with a ten-hour layover in London, a planeful of drunken soccer hooligans, and the wrong apartment key waiting for me upon my 2a.m. arrival – thus, I felt right at home when, less than fifteen hours after landing, within minutes of logging on at Szóda, I looked up to see a young Hungarian man with a flier about HuWiCo. However, it was 2004, and, clearly, cafes in Budapest were for smoking, drinking wine and socializing, not for staring, searching and surfing the Internet. It was pretty clear that I had violated a social norm by taking my laptop out for a six-hour date on a Friday night as I caught up on the e-mails that had collected during the span of my transatlantic flight while those around me unwound after a long week's work. Over the next four weeks, I spent countless hours at Szóda, visiting it almost daily in the late afternoons and evenings; I was one of the only patrons using the wireless network and, most certainly, the only woman.

The next time I visited Budapest, in July 2005, again, one of my first stops was Szóda. I had left my credit card in a Citibank machine in Berlin that morning and needed to notify them to cancel it. Sitting in the middle of the café, I attempted to use Skype to call the company over the wireless network. The sight of me talking into my USB-headset must have been strange, attracting some stares from around the café, but you can imagine my surprise when the Citibank customer service representative's voice blared from the speakers of my laptop rather than through the headphones. In the end, after multiple tries, I called the company on my cell phone instead despite the cost. Despite this, by 2005, it now seemed commonplace to use the wireless Internet in the café, which was now operating a bicycle and scooter rental business on the side. On these and subsequent trips to Budapest, I fostered relationships with Vili, Istvan (a.k.a. Mosquito), Attila, Josephus and other members of HuWiCo, engaging them as partners on the survey of WiFi users in Budapest that I will report on in this paper.

The following paper addresses two types of convergence: technological and socio-cultural. On the one hand, we are currently witnessing a period of convergence in the fields of media and information technology. For example, T-mobile has just launched "Hotspot at Home", a service that allows one to seamlessly roam between cellular and WiFi networks. On the other hand, as the following survey data from New York and Budapest will show, while patterns of usage are often expected to vary based on political, economic, socio-cultural and, even, geographic and environmental factors, in some cases, convergence can be observed with respect to cross-cultural comparisons of the way in which technologies are used.

**Literature Review**

Currently, there is a rapidly growing body of research on the way in which mobile phones are used (Ito *et al.*, 2005; Katz & Aakhus, 2002; Pedersen & Ling, 2005). However, to date, there are only a few studies about community wireless networks (Bar & Galperin, ; Medosch, ; Sandvig, 2004). Furthermore, scholarship in this area tends to focus on the technical, economic or policy aspects of wireless networks rather than exploring the people, technologies and places that make up the social and digital ecologies of WiFi hotspots. While there is some research on early Internet cafes and cybercafes, this research has not developed to include wireless hotspots. Recent studies have included analyses of user behavior – in particular, videogame behavior -- at cafes in Toronto (Middleton, 2003; Powell, 2003), the embedding of local and global culture at cafes in London (Wakeford, 2003), cafes as innovative sites of access to information and communication technology in the United Kingdom (Liff & Laegran, 2003; Liff & Steward, 2003), the significance of place for mobile work (Brown & O'Hara), the relationship between the cybercafe and the community in Scotland (Stewart, 1999) and domestic and public uses of technology at cafes in the United Kingdom (Lee, 1999). However, there is one study of the use of WiFi hotspots at cafes in Boston and Seattle (Gupta, 2004).

**Methodology**

A 40-question online survey on the use of wireless networks in cafes, parks, and other public spaces was conducted with a small grant from Microsoft Research between October 2006 and April 2007 in partnership with local community wireless organizations: NYCwireless (New York), Île Sans Fil (Montreal) and the Hungarian Wireless Community (Budapest). Île Sans Fil translated the survey into French and conducted it bilingually in Montreal and the Hungarian Wireless Community (HuWiCo) translated the survey into Hungarian. These three cities were chosen to exploit the different architectures of their wireless networks, which have been shaped by a number of factors including national telecommunications policy, economic incentives, climate, availability of public space, and local culture.

In New York, the surveys were publicized through fliers, on listservs, via e-mail announcements, and via the login or "splash" pages of the wireless networks of partner organizations. In New York, the Downtown Alliance, a Lower Manhattan business improvement district, placed a link to the survey on their website. The survey was included in New York City Council Member Gale Brewer's monthly e-mail announcement. In Montreal and Budapest, the survey was publicized only online. The survey was conducted using SurveyMonkey[1], an online survey tool. The survey resulted in 1362 responses: New York (614), Montreal (370) and Budapest (378).

The survey asks three types of questions about the use of the wireless Internet: general questions, technology and Internet access-related questions, content and activity[2] related questions and standard demographic questions[3] questions (see appendix for survey protocol). These questions were informed by a number of earlier surveys that have included questions about the use of mass media and the Internet such as the Pew Internet & American Life project and the General Social Survey. More specifically, the survey asks about the location of use, purpose and reason for use,

[1] See SurveyMonkey.com for more information.

[2] Questions on activities were adopted from the 2000 Pew Internet and American Life Project's Daily Tracking Survey (www.pewinternet.org) and by an earlier survey by Keith Hampton and Neeti Gupta developed in 2004.

[3] Questions on standard demographic variables were adopted from a February 2005 survey by Knowledge Networks (www.knowledgenetworks.com). Questions on occupation and industry were informed by the 2000 U.S. Census (www.census.gov) and New York City Economic Development Corporation (http://www.nycedc.com).

frequency and length of use, types of technologies owned and used, access to the Internet, problems using the network, type of information and websites accessed, and kinds of activities pursued.

**Empirical Data from a Survey of WiFi Hotspots in New York and Budapest**

In February 2007, the Pew Internet & American Life Project reported that 34% of all Internet users have used a wireless connection and 27% have logged on from a place other than home or work (Horrigan, 2007). The following sections will highlight the most important findings from the survey of WiFi hotspots in New York and Budapest. According to the New York survey, respondents had used WiFi at Starbucks (34%), Bryant Park (33%), the New York Public Library (23%) and independently-owned cafés (21%) in the previous six months. In Budapest, however, out of over thirty cafes and restaurants listed, respondents reported that they had used WiFi at Burger King (17%), Don Pepe (13%), McDonald's (11%), Szimpla Kert (16%) and Szóda (11%) with 58% of respondents listing additional locations where they had used WiFi. While New York's WiFi hotspots are distributed between cafes, parks and other public spaces, Budapest's are primarily in cafes, restaurants or bars. The popularity of Burger King and McDonald's in Budapest is striking because only 5% of respondents in New York reported using WiFi at McDonald's at all. Furthermore, when asked which location they used most frequently, 16% of Hungarians listed McDonald's and 15% of New Yorkers listed Starbucks. Thus, these large corporate establishments were the sites of the majority of WiFi usage respectively.

One of the most significant findings of the survey is that the availability of WiFi is an important factor in attracting people to the location where they most frequently use the wireless Internet. In New York, 40% of respondents indicated that WiFi is the reason that they went to the location and 30% said that WiFi is sometimes the reason that they went to the location; a smaller 26% indicated that WiFi is not the reason that they went to the location. Similarly, in Budapest, 28% of respondents indicated that WiFi was a factor, 30% said that it was sometimes a factor and 38% said that it was not a factor. However, when taken together, it is possible to argue that WiFi is a factor in attracting the majority of respondents to the location in both New York and Budapest.

In addition, when choosing between two coffee shops of similar characteristics and quality, in New York, 75% respondents answered that they would choose one that provides WiFi access over one that doesn't; 20% say they might; and, 5% said that WiFi would not be a factor in their decision. In Budapest, the results were almost exactly the same, differing only by 1%.

According to the survey, the primary purpose for the use of WiFi is for both work and personal use (63%). A smaller number of respondents indicate that they use WiFi for personal use only (28%) and even fewer say that they use WiFi only for work (11%). Again, the results from Budapest, mirror those in New York with the majority reporting that they use WiFi for work and personal use (57%), a smaller number reporting that they use WiFi only for personal reasons (29%), and the smallest group saying that they use WiFi only for work (13%).

In terms of the frequency, length of time and time of day, in New York, 42% of respondents reported that they use WiFi at the location weekly; 23% do so monthly; 15% do so daily; 11% only very rarely (less than once a year); 7% do so more than once a day; and, 3% do so annually. In Budapest, 33% use WiFi weekly; 27% do so monthly; 22% do so very rarely; 11% do so more than once a day; 4% do so daily; and, 4% do so annually.

In New York, 29% use WiFi for an hour; 27% do so for 30 minutes; 26% do so for two hours; 8% do so for 15 minutes or less; 6% do so for four hours; and, 5% do so for more than four hours.

In Budapest, 32% use WiFi for 30 minutes; 25% do so for an hour; 22% do so for 15 minutes or less; 17% do so for 2 hours; 3% do so for more than four hours; and, 2% do so for four hours.

In New York, the peak hours for WiFi use are from noon to 3 p.m. (51%); followed by 3 p.m. to 6 p.m. (41%); 6 p.m. to 9 p.m. (29%); 9 a.m. to Noon (27%); 9 p.m. to Midnight (11%); and, lastly, 6 a.m. to 9 a.m. (7%). In Budapest, the peak hours for WiFi use are 3 p.m. to 6 p.m. (43%); noon to 3 p.m. (39%); 6 p.m. to 9 p.m. (35%); 9 a.m. to noon (25%); 9 p.m. to midnight (13%); and, 6 a.m. to 9 a.m. (6%). On the whole, the frequency, length of time and time of day of WiFi use does not differ significantly between New York and Budapest.

When asked the reason that they used WiFi, in New York, 58% indicated that they wanted to get out of their home or office. 27% replied that they wanted to get information when they were passing by and 23% wanted to see familiar people or be part of a community. Interestingly, in Budapest, the majority of respondents (59%) indicated that they used WiFi to get information when passing by; 38% used WiFi to see familiar people or be part of a community; 26% used WiFi to get out of their home or office; and, 18% gave other reasons. This question illustrates that, while usage patterns may be relatively consistent in New York and Budapest, the rational for using WiFi is very different, possibly for socio-cultural reasons.

*Technology and Internet-related Questions*
The following section gives an overview of responses to questions on hardware, applications and Internet access. Overall, answers to these questions seems to indicate that WiFi users are relatively early adopters with respect to a number of related technologies including laptops and broadband Internet access. For example, when asked what computer hardware respondents use to connect to WiFi, 96% used a laptop; 20% used a mobile phone; 19% used a personal digital assistant (PDA); 4% used a gaming device and 2% used another device. In Budapest, 87% used a laptop; 33% used a PDA; 22% used a mobile phone; 4% used another device; and, .5% used a gaming device.

When asked what Internet applications were used while connected to WiFi, in New York, 82% used web-based e-mail; 67% used an e-mail application; 66% used Microsoft Office; 63% used instant messenger; 46% watched streaming audio/video clips; 23% used voice applications such as voice-over-internet protocol (VOIP); 22% used a virtual private network (VPN); 19% used remote desktop; and, 9% used another application. In Budapest, 72% used an e-mail application; 69% used instant messenger; 66% used web-based e-mail; 47% used VOIP; 42% used Microsoft Office; 32% watched streaming audio/video; 30% used a VPN; 28% used remote desktop; and, 14% used another application.

When asked where else respondents has access to the Internet, in New York, 95% had access at home and 89% had broadband at home; 81% had access at work and 79% had broadband at work; 31% had access at a library and 26% had broadband at a library; 23% had access at school and 19% had broadband at school; and, 5% had another location where they accessed the Internet and/or broadband. In Budapest, 96% had access to broadband at home; 79% had Internet access at work, 77% had broadband; 36% had Internet access at school, 32% had broadband; 15% had Internet access at the library, 11% had broadband; and, 7% had access elsewhere, 4% had broadband. WiFi is a complementary rather than a substitute good in both New York and Budapest, yet, it is no surprise that the broadband penetration is higher in Budapest.

In conclusion, this study illustrates that we may be witnessing a convergence in patterns of technology use based on the results of a survey of WiFi hotspots conducted in New York and

Budapest. However, there are some significant differences that should be explored further through in-depth interviews in the next stage of this project.

*Note: This paper reports on only a small portion of the results from the 40-question study of WiFi hotspots in New York and Budapest. Full results from questions about the type of content viewed and activities conducted on the network as well as demographics are available on request. They have been omitted for the purposes of this paper.*

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Leopoldina Fortunati

# Discussing a possible research agenda for the convergence of the mobile and the internet

## Abstract

The debate over convergence and divergence has been going on for a long time (Harper, 2005) and has always gone from one side to the other. Sometimes the challenge to make many technologies converge into one multi-functional one prevails, other times the logic of divergence and fragmentation in various super-specialised technologies dominates. There has been a certain braking effect on convergence from the limited efficiency shown so far by multi-functional machines such as, for instance, the intelligent fax which serves also as a printer, photocopier, scanner, and telephone. Actually, these fax machines incorporated two or three guiding technologies (fax, telephone) while the other technologies worked merely as accessory technologies.

Now the debate has begun again in response to the restart of the processes of convergence and divergence in the technological environment. The internet is merging with the mobile phone, the television and radio are also merging with the mobile and the internet, newspapers are merging with the internet, the landline telephone is merging with the mobile phone on one hand and with the internet (Skype) on the other, and so on. At the same time, the opposite process – divergence – is at work, as the phenomenon of ubiquitous computing shows very well. Similarly, the internet has left the computer desk in order to also appear on the mobile phone, television, radio, and the newspaper.

The aim of this paper is to construct a possible line of inquiry on the subject, in particular, the convergence of the mobile and the internet, starting from a series of already available empirical research studies, namely research projects on practices of use of ICTs (Haddon, 2004; Ling, 2004; Ling & Pedersen, 2005; Nyíri, 2003, 2005; Höflich & Gebhardt, 2005; Glotz & Bertschi, 2005), research on the ethnography of objects (Miller, 1998), research on fashion and on the presentation of self (Fortunati, 1998, 2005a, 2005b; Ling, 2003), on the "artificialization" of the human body (Fortunati, Katz, Riccini, 2003; Katz, 2003), social relationships and networks (Wellman, 2001; Knapp & Daly, 1985), on the category of time (Gergen 2002; Fortunati, 2002; Licoppe & Smoreda, 2005; Sørensen & Pica, 2005), on the machinization of the domestic sphere (Fortunati, 2007), and on epistemology (Longo, 2000).

If we consider convergence and divergence within the framework outlined by these studies, it becomes clear that technological convergence and divergence are strategies connected to the division and cooperation of labour, which are, according to Marx, the two natural forces of social labour. The development of the division of labour, which leads to the parcellization and specialization of single tasks, tends to push the technological process towards the divergence of technologies, while the development of the cooperation of labour, which leads to the concentration of different tasks, tends to push the technological process towards convergence. Obviously, these two forces are both powerful and therefore this explains why these two tendencies – convergence and divergence – are at work at the same time.

However, here we are talking of particular technologies – the mobile phone and the internet – whose diffusion and use are analysed especially in the domestic sphere. This sphere presents peculiar, if not opposite, characteristics in comparison to the sphere of the production of commodities and services. For instance, the domestic sphere has much rather developed the division

of labour than cooperation, given that housework and care labour are distributed in homes and social spaces. Thus Richard Harper is right in arguing that the history of the machinization of the domestic sphere is a history of divergence. Even so, within the domestic space there is perhaps the freedom to engender some technological convergences. If one sees the mobile and the internet as *work tools for reproduction,* that is tools that support and facilitate almost all the aspects of immaterial reproductive labour (Fortunati, 1996, 2006, 2007), it becomes clear that, although there is still an unjust division of housework among the different members of the family, which leads to it being above all on women's shoulders, these devices may serve to organize among the various members some cooperation or at least some coordination on a great range of functions, tasks, etc.

However, to be more precise, how can we define technological convergence and divergence? Let us talk about convergence, bearing in mind that divergence is its contrary. Convergence is a strategy to rationalize the physical and technological space or, to put it more adequately, to overcome the distribution of technologies in space, and to rationalize the time and convenience of their use. It is the attempt, as Richard Harper reminds us, to simplify the grammar of actions/tasks accomplished in different spaces. This spatial rationalization might concern the domestic space and the labour done there or the space of mobility, which has become the "personal space" of mobile communication. The "personal space" is the space of the body where the mobile more often is situated. While up to now the domestic space, as we already said, has known the phenomenon of technological divergence more than convergence, the space of the human body is another story. The human body, given the multiplicity of dimensions, languages, and functions, may need a more radical and cogent rationalization of the objects which are transported on it.

Think, for example, of the great number of objects carried in pockets (by men) or in handbags (by women). They are little objects, and also a mixed bag (wallet, keys, handkerchief, mobile, etc.), which we often risk losing or forgetting at home or somewhere else, because not having yet found a fixed or ideal place inside clothing, they are like nomads on the body, and in the spatial bubble around us (the restaurant table, the office desk, the bedside table, etc.). Flügel in 1930 had already analysed this problem of the "transport of essential objects" as being one of the great problems of fashion. After more than 70 years, we are still not able to resolve this problem. On the contrary, the problem is worsened because a new generation of handy technologies, such as mobiles, walkmans, laptops and so on has enriched the family of essential objects.

In this case, it is the spatial contiguity of an object to another which may suggest their convergence, that is their concentration in a determined point. But this, while being a spatial advantage, is perhaps a technological, social and cultural disadvantage. What appears like a rationalization of space might entail a loss of effectiveness in functionality, definition of languages, modalities and services and an increase, at the same time, of the functional complexity of technology, which is scarcely tolerated by users. Technological convergence may mean that the new hybrid devices change their identity (passing, for instance, from being mobile to becoming fixed or vice versa). Convergence may imply also a model of control that deserves to be discussed. The convergence of different artefacts in one single technological object has the consequence that if an individual loses or is robbed of his/her mobile phone, which is also purse, diary, watch, and so on, he/she loses a lot of information regarding different spheres of his/her personal identity. That is, he/she loses the control over consistent parts of his/her life. So, we discover that technological convergence builds a model of control which is absolute. But in our Western experience, we have learned that it is much safer for citizens if the political, social, and personal control is diversified. In fact, when control is diversified, each point of control can support and be subsidiary to another point of control, in case the latter for some reason lacks.

On the contrary, divergence may arise through the opposite necessity: to divide things that till yesterday were unique and/or together. Divergence might include not only a parcellization of a device in many different technological platforms, but also the deconstruction of the device itself: take for instance the mobile in which the screen, keypad, and earpiece become separate components. The strange thing is that convergence and divergence are strategies that can be applied to the same technology. The television, for example, is a typical technological artefact which is submitted to a process both of convergence (mobile/Tv, internet/Tv) and divergence (digital terrestrial television, satellite TV, cable Tv, NetTv).

Although both these two strategies are powerful, convergence is more enhanced in comparison to divergence by the specific historical moment: the moment postmodernity. In fact, postmodernity is characterized by the principle of fusion, which tends to merge processes that were distinct up to yesterday. Today, convergence is sometimes an innovative proposal by designers, other times an innovative practice of users, other times it gives rise to behaviour of prudence by users or even resistance and refusal. Convergence, in fact, is above all a problem of domestication not only at the level of social behaviour, but, even before that, at a cognitive level. Domestication is also *the* neuralgic terrain where we can really test out the mid-long term tendencies of users, and where we can understand also the real dynamics of this convergence.

We should also investigate this process of convergence from another point of view. Convergence is usually seen inside the same set, that is, technologies. But it is necessary to expand this approach and think also of a convergence between the mobile/internet and other families of objects. For instance, the relationship, which we already mentioned, between the mobile/internet and the big family of essential objects must also definitely not be forgotten (Douglas & Isherwood, 1984; Miller, 1998). It may even be the case that the cross between information and communication technologies and one or another of the small essential objects that we generally carry around, such as the key for instance, may be the keystone of content to be offered to the convergence of mobile/internet. Two cases are already emblematic of this tendency and both have been designed by users: the convergence between the mobile phone and music, and between the mobile phone and the purse (Donner, 2005). However, it would be a serious mistake to think of convergence only within the family of technologies or essential objects. We should also take into account the convergence, which is already going on, between the mobile/internet and, for instance, biodegradable materials, textiles, jewels, clothes and so on. On the other hand, it has also been a dozen years since there has been research on the mobile and vestimentary order, and, more generally, fashion (Fortunati, 2005; Ling, 2003; Katz & Sugiyama, 2005) and the presentation of the self (Ling, Pedersen, 2005).

But it may also be wrong to start only from the analysis of the technological support/function. A serious research agenda on the subject of convergence/divergence should start also, and perhaps especially, should start from the study of interpersonal, social, and business relationships in postmodern society, from needs and trends that individuals express at the primary and secondary socialization levels, in paths of sociability and education, in modes of body-to-body and mediated communication, in the relationship with the body as “portal” (Wellman, 2001), where an extraordinary network of languages converge (Fortunati, 2005c). Also, for the accurate study of the category time/space, a category with which studies of information and communication technologies have always had to come to terms. And which studies on the mobile in particular have revitalised, describing the new category of presence-absence (Gergen, 2002; Fortunati, 2002), and re-presenting the concept of rhythm (Ling, 2004; Haddon, 2004; Sørensen & Pica 2005; Licoppe & Smoreda, 2005), which obviously derives from the temporal qualities of interpersonal relationships (Werner & Haggard, 1985).

On the other hand, it might not be enough to start only from sociology, without going through epistemology, which shows us why studies on information and communication technologies (including the issue of mobile/internet convergence) must necessarily come to terms with the category "time". In Longo's words (2000:7), technology has brought time back into its analytic frame (which physical-mathematical sciences had attempted to exclude) because, from this perspective,

"it seems much closer to biology than to impassive and a-historical physics and mathematics, whose daughter many still consider technology to be. This is confirmed by the ever greater gap between science and technology: if it is true that today scientific conquests pass immediately into the applications laboratory and the day after they end up on the market stall, thus feeding a rapid turnover, it is also true that ever more often technology proceeds on its own, with a hurry that cannot wait for justifications and explanations from science… Furthermore science, while declaring that it is always ready to reconsider its conquests, would actually prefer to consider them more and more definitive. Technology never: no one has ever spoken of the perfect car or the definitive computer. If anything, the opposite… New technologies, of the mind-body, seem to be more mammals, even humans: they are born flexible and incomplete and then they develop for an indefinite length of time through interaction and learning. "

It is starting from this picture that we should ask ourselves: how will the mother of all convergences, that between the mobile phone and the internet, develop? Will convergence be mobile/internet, as I believe, or internet/mobile, as believed by others? As becomes clear from a series of studies on the social representations of ICTs, which have studied cognitively the structural similarities and differences of ICTs as well as their strategies of convergence and divergence (Fortunati, Contarello, 2002; Contarello et al., 2003; Contarello, Fortunati, 2005; Fortunati, Manganelli, 2007), the convergence which was expected to develop more successfully was that of the mobile/internet. Actually, we are witnessing quite important attempts to create different modes of convergence: see the presence of e-mail on mobiles, the possibility of connecting directly with the web, MMS, etc. (Haddon, 2005).

However, we are also witnessing at different paths in various countries. The Chinese case, in addition to the Japanese (Ito & Okabe & Matsuda, 2005) and Korean ones (Kim, 2005), where the mobile is normally used much more as a computer than in Europe (Fortunati, Yang, 2005), are worth examining. According to recent studies (Law, Peng, 2007; Yang, 2007), mobile phones in China have become for users a necessary tool in maintaining, in expanded spatio-temporal contexts, existing relational networks (friends, schoolmates, family, fellow citizens) through SMS and calls, but also in enlarging their social sphere, making connections in cyberspace also with strangers, through mobile online chat (by means of the software QQ). The spreading practice to expand social networks through mobile online chat might be one of the reasons that explains why the majority of 487 respondents in research carried out in Beijing in 2006 (with an appropriate sample of inhabitants of Beijing) answered that subsequent to the diffusion of the mobile phone, not only contact between people but also body-to-body relationships have increased, and the quality of communication has improved (Fortunati, Manganelli, Law, Yang, 2007).

In Western countries, instead, the beginning of this convergence has been rather timid. But must this cautious and limited adhesion by users in Western countries be seen as the classic refractoriness in accepting something new, or as an indication that this convergence is not likely to take off? The results reached by these various lines of inquiry and especially those connected with the introduction on the mobile phone of news, e-mail, micro-payments, and so on, may help to give a positive answer to this question, even if it is probably still too early to see which of these functions and services will really develop.

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# 'Mobiles Becoming Media: Implications for Theorizing Telecommunications Convergence'

**by Gerard Goggin**
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In the present conjuncture we find mobiles being framed as media, from a range of industrial, economic, user, producer, audience, cultural, and social perspectives. Already mobile phone networks, devices, and applications are being reconfigured with the offering of mobile television, mobile film, mobile music, mobile radio and audio, mobile games, and mobile Internet. The mobile phone is extending beyond communications to incorporate media, and in doing so stand to enlarge its cultural and social significance.

Drawing on a research project on global mobile media, this paper considers the question of mobile media, what is distinctive about these, and what their implications are for approaching a philosophy of telecommunications convergence. In doing so, I draw on cultural and media studies and theory to come to grips with mobile media.

## Defining Mobile Media

There are considerable changes associated with and debates surrounding media around the world. There is an extensive literature on contemporary media transformations, but there are three factors at play I would note here.

First, there are the changes brought to media by the entwined changes of liberalization of markets and new, convergent technologies. Second, there are the contested developments in the social function of media that often reactivate old arguments and anxieties regarding the appearance of new media. Here I would point to the debate over the significance of popular cultural forms, circulating in the global mediascapes, such as reality television, infotainment, and the rise of celebrity. Whether these amount to new kinds of public spheres and citizenship is something proposed by various media and cultural theorists, but alternative views often centre on the shoring up or revision of projects that see traditional journalism, and ideas of the public sphere, as still holding critical relevance. Thirdly, there is the growth in the mediation of communication in everyday life, of which the now indispensable mobile phone is an excellent example. Various forms of media culture are also now felt to be important for people's construction of identity, for information, knowledge, and entertainment, for belonging to communities, nations, and new forms of global civil and commercial society, but also for activating political agency.

Mobiles are often discussed in the context of these changes to media, which offers one warrant for taking seriously the term 'mobile media'. Another encouragement lies in the integration of mobiles into reinvigorated and reconfigured forms of media. For instance, the affordances of the camera phone, and the cultural practices that have quickly become associated with it, have offered the possibility for audiences (such as readers of newspapers or viewers of television) to build on early notions of eye witness, to contribute images of newsworthy events and to participate in the processes of news-gathering and journalism.[ii] The role of the mobile in these new patterns of journalism was prominent in the July 2005 London bombings, where video footage from mobile phones provided early images of the breaking news — whether re-screened on television, or viewed on Internet sites and blogs.

Another example is the incorporation of mobiles into the structures and genres of television. This is most strikingly observed in the global format trade of program such as *Big Brother* and *Idol*, where mobiles have a two-fold function. First, in the tradition of talk radio and also the use of the telephone in television, mobiles provide a new feedback channel for viewers.

As well as ringing up to speak to a host or register a view, audiences may vote via text message. In addition, mobiles have provided an extension of broadcast platforms (with the possibility of downloading video clips or music to be played on a handset) or fan and magazine culture (downloading ringtones, screensavers, and other paraphernalia). Mobiles have become part of this conversational, communicative, digital architecture of television through the popularity of text messaging cultures. For their part, mobile carriers and new cultural intermediaries responded to these developments, commodifying, and extending its possibilities.[iii] Second, mobile telecommunications networks provide excellent, individualized billing systems, and subscribers who have been accustomized to paying for voice telephony and data communications, in a way that would be anathema on the Internet.

I will turn shortly to recent developments in broadcasting television to mobiles, however I would like to consider the question of how we might define mobile media. Like with the mobile phone itself, we need to distinguish analytically between the concept of portable media, on the one hand, and that of mobility, on the other hand. We know of a number of portable media, dead, living, and imagined, from the book and newspaper, through the portable radio, Sony walkman, video camera, portable television sets, to digital device such as the digital music player, or laptop computer. Yet, as we have discovered with the cellular phone, once it untethered itself from vehicles and gained greatly in portability, we need to consider what kinds of mobilities are in fact associated with a technology. Especially with the rise of the thematization of mobilities as a topic of research, we have become sensitised to the existence of various, complex, and interdependent systems of mobility, into which we can fit communications, and now, media.[iv] This said, though we need to recognise the particular issues posed by concepts of portability and mobility, I do think something important is unfolding that can be thought about with the concept "mobile media" — and that centres on cellular mobile telecommunications.

Mobile media is potentially different from other media in respects that we are still coming to understand. In the 1990s, the cell phone became more than simply a portable voice device; particularly with the development of text messaging and camera phones as a distinctive facet of mobile phone culture. Now we have the thoroughgoing entry of cell phones into the world of media. This is perhaps most clearly grasped in the sphere of audiovisual production, where mobile film and video makers, for instance, have been preoccupied with experimenting with the aesthetics of the small screen (issues of quality, resolution, and look) and the social and cultural practices of mobile telephony (watching of film on handset in a range of new settings, such as in queues, or transit lounges, or public transport). Mobile media, then, are precipitating the rethinking of relatively stable, culturally central media, such as film and television. Mobiles are also critically implicated in the directions of the newer online media, notably Internet and games.

## Emerging Mobile Media: The Case of Mobile Television

A fascinating case study in the emerging mobile media, and a spur to thinking about philosophy of telecommunications convergence, can be found in mobile television.

Digital television has been eagerly discussed and anticipated for quite sometime, but "official" mobile television is a comparatively new phenomenon. The thing called mobile television appeared on the scene in various countries in 2004-2005, especially through trials, the most publicised of which was Nokia's partnership with various mobile carriers and television program and channel providers. My sense is that prior to this time mobile television, as such, was only understood in technical and standards-setting circles. It neither formed part of the policy debates and industry struggles concerning digital television, nor did it form part of the cultural imaginaries of television and media futures. Certainly much policy attention and public discourse centred upon the promise of telecommunications, of which

cellular mobile phone had become prominent, but it took sometime to engage and invoke the televisual specifically.[v]

Despite its recent emergence, various media players, not least phone companies and equipment manufacturers have high hopes for mobile television. A November 2006 advertisement for Australia's Telstra promoting mobile media featured a primary school teacher asking her pupils to tell her what particular images in a book are. She points to what is obviously a mobile phone, and a young boy happily declares it to be a television. Mobile television is now commercially available in a number of countries. Its diffusion is still in relatively early stages, not only because of the cautiousness of providers but also because of the still nascent state of the technology. Mobile television is still often delivered using the 3G network itself rather than the various standards that allow use of broadcasting spectrum to deliver television direct to mobiles (for example, Digital Video Broadcasting — Handheld or DVB-H). One of the reasons for this is that mobile television has been caught in the wider policy and regulatory debates over spectrum allocation for digital television.[vi]

In this dawn of mobile television it is still unclear exactly what it is: that is, what programs are actually shown, how do they compare with other forms of television, and who watches them, and what do they make of it. In my own research I have conducted a preliminary list of what is being offered by the four main mobile carriers in Australia. From this limited survey, my conclusion was that there was especially ground-breaking in mobile television up to mid-2007.[vii] Much of the content available thus far on mobile television in Australia involves reworking, customising, or abbreviating programs well-known from other forms of television, especially free-to-air and subscription television. There has been little made-for-mobile content, other than the celebrated examples such as *24 Conspiracy*, offered in Australia by Vodafone, although in September 2007 at least one carrier committed itself to offer some experimental local content.

It is fair to say that apart from ritually cited industry studies, mostly laudatory and confirmatory, of mobile television, and some pioneering studies, there is little known internationally about whom is actually watching mobile television, where, how, for what ends, and with what significance. There do now appear to be developing audiences for mobile television, especially around sporting events, media events, and also the new participative formats associated with *Big Brother*.

As well as basic research into fundamental aspects of this form of mobile media, it would be important also to place mobile television in a larger, messier field of developments especially short videos and films for mobiles, which have been the subject of much innovation and experimentation in artistic and film communities, but have not yet been widely distributed as part of either mobile television or mobile film content. Mobile television needs also be discussed in the context of the watching of audiovisual content on mobile phones and wireless devices, associated with the new television and Internet downloading cultures. Here we see the fast growing popularity of the downloading of television programs and videos, from either "official" television sites set up by broadcasters, or from 'unofficial' peer-to-peer networks (such as those using Bittorent and other applications), and the viewing of such programs on video iPods, mobiles, laptops, and so. Finally, we might contrast the slow, jerky development of mobile television with the extraordinary constitution of a new distributed user-producer community of audiovisual material in the form of YouTube and other such websites.

**The Social Function of Mobile Media**

It might be objected that mobile media are still so recent to put into focus, that it is too early to discern what sorts of forms it engenders, and what sorts of audiences will seek it (or vice-

versa). And indeed this is a challenge, as my case study of mobile television illustrates. A contrary view, however, is that we might also see an opportunity here, informed by traditions of the social studies of science and technology, to explore a technology, and medium, in the process of becoming, before it is black-boxed and taken-for-granted. Yet while still in its infancy, mobile media is an important development with wider cultural, theoretical, and philosophical implications.

For example, those interested in the future of television, and media generally, can no more overlook television's mobile and portable trajectories, than they can wish the Internet would settle down. The career of television around the world took certain forms over a roughly fifty to sixty year period from the 1920s or 1930s through the 1980s or early 1990s. It become a central cultural technology in very many countries, associated very closely with particular social and gender arrangements, with leisure practices and popular cultural forms, and with enormous importance for questions of politics, citizenship, and public sphere. For sometime, this settled image of television has been blurred, unfocussed, reframed, cut up, and remixed. The digital transformation of television is one prevalent way of approaching these changes. What we need to think about now is how mobile technologies fit into, qualify, modify, and challenge television's digital turn.

In doing, we will confront important questions of how mobile media is implicated in the development of new cultural forms and genres, social arrangements, and new audiences and publics. These are questions traditionally raised about matters of media and culture, and have not often been posed of telecommunications or even mobile phones.

They have of course been widely discussed in relation to the Internet and digital cultures. Indeed, many contemporary ideas about philosophies of convergence revolve around particular notions of online culture, which are modelled upon Internet cultures and technologies. It is often assumed, by extension, that new cultural and media assumptions bound with the Internet should be applied to mobile platforms (for instance, contrasting the "open" Internet with "closed" mobile platforms). This tendency neither does justice to mobiles becoming media, nor to the project of finding an adequate philosophy of convergence.

**Notes**

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[ii] For instance, see Henrik Schneider, "The Reporting Mobile: A New Platform for Citizen Media", in Kristóf Nyíri (ed.), *Mobile Studies: Paradigms and Perspectives*, Vienna: Passagen Verlag, 2007.

[iii] On mobile messaging and television see Gerard Goggin and Christina Spurgeon, "Mobiles into Media: Premium Rate SMS and the Adaptation of Television to Interactive communication cultures", *Continuum: Journal of Media and Cultural Studies*, vol. 21, no. 2 (2007), pp. 317-329.

[iv] John Urry, *Mobilities*, Cambridge: Polity, 2007.

[v] See Gerard Goggin, *Cell Phone Culture: Mobile Technology in Everyday Life*, London: Routledge, 2006.

[vi] For a discussion of mobile television and policy, see Gerard Goggin, "Mobile Digital Television: Dancing with the Stars, or Dancing in the Dark?" in Andrew Kenyon (ed.), *TV Futures: Digital Television Policy in Australia*, Melbourne: Melbourne University Press, 2007, in press.

[vii] Goggin, "Mobile Digital Television".

**In Our Time – Converging to a Culture of Continuous Present**
Daniel L. Golden

## 1. Past perfect

Telecommunications convergence is usually addressed from the side of technology. However, the importance of these changes can be measured primarily in their long range impacts on socio-cultural processes. For example, one of the basic concepts of Western civilization challenged by the new info-communication technology is that of *time.* As Kristóf Nyíri (2007) has recently shown, personal schedules and constant interactive rescheduling enabled by the new global communication networks change the nature of *time as a social institution.* In the present paper I try to analyse the transformation of *time as a cultural institution*.

From cave paintings to virtual reality applications there is a long history of tries for *recording* human thoughts, feelings and insights. This became a technique of man-thrown-into-time to stop the unstoppable – what you have recorded, you can hold back with you, while time is running over; in this way you can make your past present. In order to put your records (i.e. your past) in a kind of order, you will need some type of punctual time-identifier to be attributed to a certain record. At this point *metaphysical time becomes technical time*, which can serve the pragmatic purposes of *building up personal and collective memories.* The main goal of cultural memories as *archives* – at any grade from global through national till local or familiar – is to know something and to know when, where and how members of the community are able to check the piece of information in the aim of testifying its existence, learning more about it, or teaching it to the next generation.

The public institution introduced to fulfil this function is called *date* – one of the basic *data* to be attributed to a distinct piece of cultural heritage. The two similar words go back in fact to the same etymology: *datum* in Latin, past participle of the verb *dare*, 'to give'. From this 'something given' the plural of the noun became the generic name for everything factually fixed (e.g. in mathematics already in Euclid) or recorded, and at the same time the singular form the name of a particular point or period of time. According to the tradition *datum* originally meant the moment of issuing a letter, practically giving it to a messenger, and in that sense it involved the place of issuing too.

## 2. Presenting in digital media

In the digital environment the traditional functions of *recording, publication, multiplication, collection, organization, categorization, storage, retrieval and disposition* of information all become subjects of important transformations. Formerly the above steps of *archiving* followed one another in strict order and there was a *distinct date* assigned to each of them. Today in digital media they are happening *simultaneously*: e.g. in an online presentation of a football match the journalist is writing his article *during* the event, as when he is ready with a few sentences he publishes them immediately and while readers are consuming it, he is already working on further parts of the text. In this way the classical stages of information processing are getting mixed up entirely: in classical terms the publication of a text now precedes the final authorizing of the manuscript. This sounds quite absurd – but only in the medium of the written text. In speaking we are doing this all the time: getting back to something said two or three minutes before and correcting it, adding something to it etc. Just the same as in a television news program when the latest developments of a headline presented already at the beginning are brought to the audience at the end. This is the natural way of communication naturally running along with the rhythm of real life. Writing came in as artefact to artificially change this natural order, *to freeze the flow of time,* giving the illusion of eternity.

In general, internet news sites have *no principle time limit* for their activity in contrast to daily (weekly etc.) paper editions, they can (and following the commands of competition they should) operate constantly.

Hence the dating of news can not be restricted to year, month and day, but has to contain indications of hours and minutes, eventually even seconds. Furthermore, digital media enables the publisher to hold *up-to-date* his already published material, which means the possibility of changing of the text (sound, image etc.) whenever it seems to be important or relevant. That brought to live the term „last updated", a real specialty of internet media. It seems that *news* in the digital age while struggling for being as new as possible will possess in any moment only their present form linked to the present of the moment of consulting them.

Nevertheless, there is another sense in which newness is life-important for news editors: and that is *to be the first* in reporting about a certain event. Therefore news should get an indication of their 'date of birth' as well. In this way we can define already a 'life' for these pieces of digital culture: between their 'date of birth' and their last update. But still, they will have no 'memories' from within this period, because these stages (the recordings) are unimportant regarding the interests of the media. In fact the same is valid for today's industrialized art, entertainment, sport or even science.

In the virtual world the automatic time definition of documents (i.e. files) is linked to the clock of the personal computer 'giving home' to them. There again we loose the essential feature of time: being common and representative to a certain community. My computer normally does not have to negotiate with anyone about its time, so a *date* of a file is not trustable on the age of its content. International data exchange of course made necessary the tries for the *unification* of date and time declaration (cf. ISO 8601 on the presentation and Coordinated Universal Time (UTC) on effective calculation), but these do not touch everyday usage in our everyday archives. Furthermore, any kind of time assignment is subject of the general unreliability of digital information – date is modifiable whenever the user feels need for doing it (whether embedded in the text of a document, whether attributed automatically by the machine). For the inconvenience of real world time in the virtual environment, programmers and users developed a new kind of time organizer, called *version number*, providing *solid sequenciality* and the *indication of moving forward in time*. This may show that these features are the ones with real importance in the life of man and his cultural artefacts, rather than precise dating based on a complicated measuring system of technical time.

All this of course effect the traditional memory-institutions of *references* and *bibliographies* as well. When you want to make a reference to a digital document, you have to consider the vulnerability of electronic sources. They can change, they can become unreachable for a while, or they can simply disappear forever. That is why we can often meet in reference lists the phrase „last viewed". It is like Plato would note after every sentence of his dialogues something like „when I last met Socrates, he held these views, but I can not take responsibility for that he may has changed his mind since then". Here we try to use the preciseness of the printing press age in the digital age, and in doing that we fall in the sin of *anachronism*, since for a reference pointing to a material eventually gone forever the words „last viewed" cannot give any salvation.

### 3. Present or not present

Probably the most widely known concept of network-time has been presented by Manuel Castells in volume I of his trilogy on *The Information Age*. He considers the turning point the 1980s when „For the first time in history, a unified global capital market, *working in real time,* has emerged." (Castells, 434), which resulted in that „The technological ability to reintegrate in a network of stored information contributions from various workers at various times induces the constant variation of the actual time of work performance, undermining the structuring capacity of working time over everyday life." (Castells, 442)

However, one of his early reviewers and perhaps first monographer, Felix Stalder criticizes Castells that his coining of "timeless time" is rather a good-sounding "staple of postmodern theory" (Stalder 2006, 160), but in close analysis not very telling. Stalder is right, that any disturbance to natural time made by the new all-day working will still leave unaffected the basic role of sequences in everyday life of human creatures. So it is a kind of overstatement to say that "Elimination of sequencing creates undifferentiated time, which is tantamount to eternity." (Castells, 464).

What ever long rescheduling will precede an appointment, the *memo* written about it will tie the decisions made to a definite date and time *being neutral* in order to make it publicly available – in extreme cases for an independent court.

In a previous chapter Castells gives a more convincing analysis of the *field unknown*: „What characterizes the new system of communication, based in the digitized, networked integration of multiple communication modes, is its inclusiveness and comprehensiveness of all cultural expressions. Because of its existence, all kinds of messages in the new type of society work in a binary mode: presence / absence in the multimedia communication system. Only presence in this integrated system permits communicability and socialization of the message. All other messages are reduced to individual imagination or to increasingly marginalized face-to-face subcultures. From society's perspective, *electronically-based communication (typographic, audiovisual, or computer-mediated)* is *communication*." (Castells 1996, 374)

Using the dropped remark made here by Castells, Felix Stalder (1998) suggests a *binary notion of time and space* for the digital world. „Binary time expresses no sequence but knows only two states: either presence or absence, either now or never. […] Binary space, then, is a space where the distance can only be measured as two states: zero distance (inside the network) or infinite distance (outside the network), here or nowhere." Elsewhere he is wording the same idea this way: „In the network environment everything that is the case is here and now (inside the network), and everything else in nowhere and never (outside the network)." (Stalder 1999)

This formula can remind of the once fascinating, now seemingly outworn ideas of Benjamin Lee Whorf about the Hopi Indian language, discovered by him for scientific research in the 1930s, and giving on of the basic reference points for linguistic relativism. According to Whorf „[…] the Hopi language and culture conceals a METAPHYSICS, such as our so-called naïve view of space and time does, or as the relativity theory does; yet it is a different metaphysics from either." (Carroll, 58) While the „grand cosmic forms" of the Western man are space and time, Hopi metaphysics „[…] imposes upon the universe two grand cosmic forms, which as a first approximation in terminology we may call MANIFESTED and MANIFESTING (or, UNMANIFEST) or, again, OBJECTIVE and SUBJECTIVE." (Carroll, 59)

This proposed duality of *manifested* and *unmanifest* seem to perfectly describe the cruelly simple law of information retrieval on the Net: what is accessible at a definite moment, that exists for the user (or for a search engine), and what is not, that is practically non-existent. But as Whorf goes on interpreting his categories, we can make this parallel even more exciting. „The objective or manifested comprises all that is or has been accessible to the senses, the historical physical universe, in fact, with no attempt to distinguish between present and past, but excluding everything that we call future. The subjective or manifesting comprises all that we call future, BUT NOT MERELY THIS; it includes equally and indistinguishably all that we call mental–everything that appears or exists in the mind, or, as the Hopi would prefer to say, in the HEART, not only the heart of man, but the heart of animals, plants, and things, and behind and within all the forms and appearances of nature in the heart of nature […]" (Carroll, 59) So we can say that in the age of Internet, the ubiquitous medium of communication, one could seriously define the objective as what is accessible through the Net. Since objectivity should mean nothing else, than intersubjectivity, and the most effective actual form for this is publishing on the Net. And we can go even further: for the metaphysics of the Net our physical reality will be the unreal, in the sense that it is out of range, out of digital control. That unreal is the so-called "realm of hope" for the Hopi's of Whorf – from those internal mental processes emerge what is coming true, what is getting manifested in the intersubjective, ubiquitous medium of the information age, the global communication network.

## 4. Present continuous

Digital media lack the ability of definitely freezing the flow of time into *eternal punctual memorials,* the necessary building blocks of an articulated past. Strict dating will disappear step by step from the field of cultural memories, as the contingency of assigning, calculating and coding will make it marginal in comparison to poles of presence or absence.

Without definite and firm dates attributed to certain events there will be no *absolute chronology* (i.e. putting time in rational order with the help of a coherent calendar system), only different attempts at *relative chronologies* reflecting the sequence of certain events. This must change the nature of our historical narratives as well, probably bringing them back to the ancient genres of the ages of orality.

In digital media nothing is 'given', but everything is constantly in the state of 'being given' – and whenever this state ceases, that means the disappearance of that piece of data from our digital life-world. In this way the convergence of technologies leads the convergence of cultural functions of media to the convergence of metaphysical time. In the place of a *past perfect* we receive a *present continuous*.

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# More than a Phone: Emerging Practices in Mobile Phone Use amongst Children

Leslie Haddon[1]

The first wave of mobile phone studies amongst youth focused mainly on communications, especially texting, and the implications of a personal phone both for parent-children relationships and peer awareness and negotiations. There were, in addition, other studies that framed the mobile as a symbolic object (e.g. in discussions of fashionability, of customisation) and in relation to the role it could play in gift-relationships. Studies with a slightly different emphasis followed once the mobile acquired more functionality, principally in the sub-literature on the reception to and subsequent use of the cameraphone.

Since its introduction the mobile has continued to acquire more accessories (e.g. the phone charms, the straps, the coverings) and functionality (e.g. the mobile as a video recorder, as an MP3 player, as an Internet platform and more recently as a device for accessing TV). Developments in relation to the Internet have also had implications for how the mobile phone is 'used' by youth. Perhaps some of the most striking are social networking sites like *My Space* (or national sites such as *Cyworld* in Korea) channels for video distribution like *YouTube* and sites for downloading music such as *iTunes* (as well as illegal alternatives).

This paper, based on recent British empirical research[2] using focus groups, interviews and dairies, examines the consequences of these developments for the way in which mobiles are used by children currently aged 11-16.

## Images

As in the research on the cameraphone in other countries, this was often the children's first (digital) camera and it was mostly used for capturing spontaneous images from everyday lives such as a group of friends in the park, a new baby in the family, of events such as fireworks show. If anything, there was a premium on elements of humour (as when a pet did something amusing). In contrast, those young people who also had digital cameras used them on more special occasions where the taking of pictures was anticipated, such as at parties or on holidays, the main reason being that the better quality of the images on dedicated devices.

If we turn to what youth actually do with images, as in other research, MMS is rare mainly because of the cost. A few had sent images, especially if it was part of a tariff

[1] This study was conducted with Jane Vincent through the Digital World Research Centre at Surrey University on behalf of Vodafone UK: Haddon and Vincent, 2007.

[2] The new empirical data for this research builds on an earlier study by DWRC (Vincent 2004) that had previously examined this topic. For this new study DWRC invited children to participate from the same schools and locations as before. Three focus groups comprising 6-9 children were held in each of two secondary schools and 48 children, including some of the focus group attendees, kept a 24hour diary record of their communications activities. Six of the boys and six of the girls who had not participated in a focus group were interviewed for about one hour about their diary and about their mobile phone and other technologies. All the respondents were from the age groups 11-12, 13-14 and 15-16.

package that allowed some free multimedia messages or if there was no free alternative like Bluetooth. Some had tried out the MMS service but were not impressed when they had to go to a website to retrieve pictures. The most common practice was still to show pictures that were still on the mobile to friends, then delete many, keeping the 'best' ones on the grounds of either quality or content. Some picture enthusiasts, such as Sandra in our study, collected images saving them on her computer, edited them and transferred them back to the mobile or, like Luke, transferred pictures taken with a digital camera onto the mobile. Transferring images to other people by Bluetooth (or Infrared) did occur but was less common than transferring music. People used the video facility for more action orientated images, but this was still less common than taking still images.

In addition to this picture taking and sharing outlined above we also have the more illicit use of the cameraphone at school, which may be rarer but was good material for stories retold by interviewees of what their peers sometimes dared to do in order to create a little 'event' in school life.

Charlotte: *In PE (Physical Education] we were doing this gymnastic thing. Someone was sitting on the bench and the teacher was turned to us. And she (the girl on the bench) goes "Wave" and we're all waving. And the teacher didn't even notice that she was taking pictures of us and videoing us from behind.*

The case of the cameraphone (and video on the camera) raises a number of other issues for schools. One of the subjects occasionally captured in a photograph or video was teachers themselves, caught unawares (as when one of the teachers, was caught dancing '*for no apparent reason'*).

Apart from such illicit use there have also been some policy-related discussions of the implications of the photos that children take of each other, for example, in relation to cyberbullying (EC, 2006, Save the Children Finland, 2005). These discuss the incidence of potentially 'embarrassing pictures' for children. But this UK research shows that what counts as amusing pictures for some can count as embarrassing photos for others, although 'embarrassing' can take on a range of different meanings. Some young people were embarrassed because of how they looked in a photo quickly taken on the mobile's camera, with both boys and girls noting that this was more of a girl's reaction. In one of the focus groups, Sandra had been photographed while on the trampoline and had pleaded, to no avail, for her girlfriends to delete it. The initial discussion of this event was itself revealing:

Interviewer: *What counts as a funny photo…can you think of any examples from the past?*
Nina: *Something someone would be embarrassed by (laughs)*
(Focus group 2: 13-14yrs)

Then there were the 'annoying' photos, as when James described the practice of being tapped on the shoulder and his peers would take a picture to catch an unguarded expression – a milder version of happy slapping from James's perspective. To be fair, some of the participants said that they generally asked permission to photograph, they were aware that it was an issue. For others it is not an issue because either the other youth present often posed for pictures or if one was taking pictures of a group the

others also did so. Or as in the above examples, young people tried to capture images when their peers' guard was down for fun, which the person been photographed might or might not appreciate. Sometimes when ask to delete a photo they did it straight away, sometimes resisting this request becomes a game, a form of teasing and sometimes they were simply not deleted.

Clara *It depends whether they're… they don't like having their photo taken or not. If they don't like having it taken, then I just say, oh, can I take a picture, and they're like, okay. And they'll just pose and you take a picture. But if they're really, like, shy, you do it when they're not looking, and then you go "surprise" and take a picture.*
Interviewer: *Yes, but whether they're shy or not, do they ever complain?*
Clara: *Yes, they say, give me your phone. I want to delete it. And I'm like, no, no, no.*
Interviewer: *So if they ask you to delete it, do you delete it?*
Clara: *No. You then send it to your friends*.

Apart from sending the images, they could obviously no be posted on websites.

Nina: *This girl fell asleep and she had paint all over her face…and we all took photos…and shared them around and put them on Bebo…and she got very upset…*
Ruth: *And so we took them off.*
Nina: *When they get upset…then you delete them…but…(…) You keep going until they're upset*
(Focus Group 2: 13-14yrs)

Or
LH: *But these videos and pictures that have been posted…have there ever been any cases where has caused any embarrassment or…?*
Most people: *Yeah* (nodding)
Zach: *You can use it for bullying*
Bell: *Yeah, people that take really embarrassing pictures of someone like…if they pull a face or something…*
Zach: *Or if their trousers fall down, or something*
Bell: *Yeah, that's hilarious…but it's also really mean*
Zach: *But if you're having a laugh…but say like me, Dan and Will were in the changing rooms and I just got Dan's trousers and pulled them down and Will just took a photo real quick…and like we put in on the website…I'm sure Dan wouldn't take it as a laugh, really*
(Several others laugh)
(Focus Group 4: 15-16yrs)

One common subject was school fights, some of which had been posted on *YouTube*, including mentioning by name the school in question. And there were examples of staged events.

Luke (13): *They were in the drama studio and Justin, he was just sat on a chair…and someone came and happy-slapped him right round the face. But he knew they were going to do it. Like he practised… like fake happy-slapping. And they put in on YouTube. It's like still there.*
(Focus group 2: 13-14)

In fact, during the course of the interviewing an urgent communication was read out to all the classes about such practices since it was felt to be giving the school in question a bad name.

**Music**

One of more relatively recent additions to the mobile phone's functionality at the time of the research was the MP3 player, which for some had become a 'must have' when they upgraded. Unlike the distinction between the cameraphone and digital camera, the participants in this research did not differentiate the mobile's music quality from iPods or separate MP3 players. The superior storage of the latter was its greatest advantage. As in the case of cameras, the advantage of the mobile was that you always carried it around anyway. The mobile could also more easily be played aloud for collective consumption, as young people took turns to listen to each others' music when going home after school when travelling together on a coach to sports events.

Downloading ring tones had become less popular now that people could now create their own via the music function, transferring their favourite tunes to the mobile or recording them using the record function. Meanhwhile, showing what music you had was in many ways equivalent to having a photo album.

But probably what counts as a new development was the degree and ease of sharing music. In the technology rich world of these youth there were alternative ways to do this (e.g. sending as attached file of digital music via the Internet). Hence some teenagers would take music from their own CD collection or from downloads (legitimately bought from sites like *iTunes* or illegally downloaded,) and send it on to friends. However, they could equally put music on the mobile, from whatever source, play it and transfer to by Bluetooth whenever those listening said '*Can I have that music*'. There was more spontaneity, even if to an extent pre-planned by virtue of putting music on the mobile, when one could transfer it there and then as a gift. The mobile phone as storage device enabled such ways of sharing to emerge.

Finally, as with the cameraphone, the MP3 function offered the prospect of illicit use as when Tim 'stretched' the school rules by listening with his friends at break times. Others most clearly broke the rules by listening during lessons:

Rosaline: S*ome of them have earphones they put it in their ear and listen to music*
*Helen: With Bluetooth headsets now…you can just listen to music.*

But you can get caught out.

Nina: *They have headphone with their phones and the music is really quiet. But the headphone can come out and it starts belting out this music in your pocket.*

**Internet**

Many of the participants in the research knew they had the option to access the Internet on their phone – in fact, some like Ruth and Sandra complained about the design of the buttons such that it was too easy to hit a button and go online by accident, with the financial cost that this entailed. Like adults, they could critically

evaluate the technologies fit-for-purpose, noting the small screen or, in some cases, that only part of internet services were offered by some operators. In contrast, the home PC offered 'free' (for them) and convenient, easy-to-use access to the Internet, which they all thought they would continue to use for most purposes. That said, many had tried the Internet on their mobile or talked to others about it and it was quite clear that the chief barrier to use was cost.

Among the users of the Internet, most were occasional users. Carol had a certain amount of 'free' downloading as part of her contract and in general she thought that the access was cheaper than pre-pay. For her it was quite useful to be able to communicate online free from the surveillance of parents – one of the themes from the policy discussions that raise concerns about the Internet on the mobile (EC, 2006). Other examples of irregular use were once when the family had been lost while driving and the son Jed came to their aid by looking up Streetmap.co.uk. Several, such as Martin, had looked up sports scores (football and cricket) diving into the Internet quickly and getting out again as soon as possible to minimise cost.

Hence, during interviews and focus groups the question was posed as what they might do online if the price came down, especially if it moved towars the cost of texting, a level of cost they were used to. Although hypothetical, this generated much more interest in the Internet.. Some thought they would quite like to simply spend a little more time doing what they already did (e.g. sport-related) without the pressure to get offline quickly. Others could think of some more occasions when it could be useful such as looking up things for homework on the way to school or checking train timetables if they just missed a train. But besides such instrumental users, for young people who had become used to doing more and more things on the mobile over time

Daisy: *Like you can get funny videos and funny pictures on Google and stuff and you could show your friends.*
(Focus Group 5: 11-12yrs)

Meanwhile some, like Luke, considered it might simply be quite '*cool*' to go online, including doing this illicitly during the lessons.

Luke: *Yeah, because if you were in class you could go on your Bebo…you could go on the Internet and do what you liked and no-one would stop you. Cos it's so small they wouldn't see it under the table.* Luke (13)

**Conclusions**

This brief snapshot of young people's experiences of the mobile in 2007 attempts to outline the new practices that are developing around the camera and video options, the new MP3 functionality and Internet access – and its potential if the cost were to be lower. At the same time is draws attention some of the more illicit behaviour and in the case of images the practices and interactions between peers which touch upon the contents of some current EC policy discussions.

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***The mobile reel*: mobile media as art form or communication medium**

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**ABSTRACT**

Over the last couple of years we have become customised to the global media informing us of the revolutionary and democratic possibilities of mobile media. Whether we like it or not the mobile phone has become a vehicle for multimedia par excellence (Boyd, 2005). The epiphany of convergence (Jenkins, 2005), users who just want a mobile phone for voice call find it impossible to get such a device without all the 'extras'. In one way, the rise of mobile media parallels the rise of the webcam by affording everyday users with the ability to document and edit their stories, however, mobile media promises more – the portal to new arising forms of distribution such as MySpace, Cyworld minihompy, YouTube etc. But is mobile media a medium or an art form? And just what types of new modes of digital storytelling are evolving? If audiences are making films, where does this leave the traditional filmmaker? And what are the specific visual and aural economies of mobile media and how do they translate into other contexts?

Is the recent release of the feature length movie shot entirely by mobile phones by South African Aryan Kaganof, *SMS Sugar Man*, a sign of things to come? Is there some type of realism and authenticity inflected by mobile media as democratic media? Will our cinemas be flooded with hand-held, blurry, low resolution films that make Dogma 95 films look like conventional Hollywood film? Or will the miniature and compressed aesthetics of mobiles lend themselves to new avant-garde forms of cinema that may not be presented in the normal cinema context? Will the TV-like 'radio with pictures' quality of mobile media lend itself to highly aural micro-narratives lasting not longer than 2 minutes?

One of the dominant features of mobile media is how it further fetishises the analogue by way of its obsession with modes of realism – or what Ilpo Koskinen characterizes as 'the aesthetics of banality' (2007). In this way, mobile media oscillates between the *real* and the *reel*. This paper will outline some ways in which we can begin to conceptualise the rubric of mobile media by discussing a couple of modes of mobile media – such as camera phone practices and mobile moving making. The examples are drawn from my ethnographic research and new media practice.

## WAITING FOR IMMEDIACY: LOCATING MOBILE MEDIA

The birth of mobile media could be read as nascent. However such a belief, propagated in global media's lauding of the new mobile revolution in consumer agency (in the form of the prosumer and Web 2.0) neglects to address the dynamic dimensions of technology. One dominant (or killer application) has been the convergence of mobile media and gaming; the ultimate shift of the mobile communication device into an entertainment "rich content" portal. In the rise of the ubiquitous rubric of mobile media, many forms of practices have emerged. Micro movies (that is, movies made for the mobile devices), pocket films (movies made by the mobile device to be screened either on the mobile device or other screens including the cinema), casual games, location-based games, and camera phone practices involving the attendant forms of what Ito et al. (2005) call the three s's—shoring, saving and saving——on various media including SNS (social networking sites).

As mobile communication and media industries convergence, the all-pervasive futurist rhetoric becomes stifling. And yet, if the twin histories of new media and mobile communication have taught us anything, the 'new' is always remediated and mediated. This cuts to the core of all communication and cultural practices implicated in intimacy. For Jay Bolter and Richard Grusin (1999) new media is remediated with older media into a dynamic ongoing process that disrupts any causal or linear notion of old and new technologies. As Margaret Morse (1998) concisely notes in the case of the Internet, all forms of intimacy are mediated – by language, gestures, and memories. Emerging forms of visual, textual and haptic mobile genres such as SMS and camera phone practices—re-enacting earlier rituals such as 19th century letter writing, postcards (Hjorth 2005) and gift-giving customs (Harper and Taylor 2002)—have only served to highlight the remediated nature of the rise of mobile media.

As I have argued elsewhere (2007), there is much to be learnt from understanding the parallels between new media theory on remediation and mobile communication's usage of the domestic technologies approach. In order to fully understand such projects as location-aware mobile gaming, we need to draw from both new media remediation and mobile communication domestic technologies approach. Like the domestic technologies approach (Haddon and Silverstone 1992; Miller 1987), the study of new media through the lens of remediation echoes a similar philosophical stance. As influential theorist in the field of media-archaeology, Erkki Huhtamo, has argued, the cyclical phenomena of media tends to transcend historical contexts, often placating a process of paradoxical re-enactment and re-enchantment with what is deemed as 'new' (1997).

According to Timo Kopomaa, the mobile phone is an extension of 19th century media (2000). For Kopomaa, mobile media creates a new 'third' space in between public and private space. On the one hand, the project of examining mobile media entails observing the remediated nature of new technologies and thus conceptualizing them in terms of media archaeologies (Huhtamo, 1997). On the other hand, mobile media's re-enactment of earlier technologies is

indicative of its domestic technologies tradition that extends and rehearses the processes of precursors such as radio and TV.

Both traditions emphasize the cyclic and dynamic process of media technologies that cannot be simplistically divided between old and new. Rather, the cartography of mobile media is one imbued by paradoxes. In the case of camera phone practices – whether still or moving – mobile media demonstrates two distinctive paradoxes, that of the *reel* in the real, and the inherent poetics of *delay* in the practice of immediacy. As Lev Manovich (2003) identified, contemporary new media and digital practice is all consumed by fetishing the real through the lens of the reel – that is, texture and skin of the analogue.

In my ethnographic studies into camera phone practices in Seoul, Tokyo, Hong Kong and Melbourne, one of the increasingly features of the tyranny of the 'fulltime intimacy' (Matsuda, cited in Ito, 2005) of mobile media customization is the use of immediacy to camouflage delay. Many respondents spoke of their pretending not to see the SMS or MMS so that they could savour and think – the poetics of delay – that immediate technologies seem to need. Moreover, the persistence of the reel in much of the camera phone images, genres and mobile movies was significant. In particular, for many respondents, mobile media making was less about visual economies and more about aural and haptic modes of address akin to earlier 'reel' domestic technologies such as the TV and radio.

## *REEL*-Y BANAL: SPECTERS OF THE ANALOGUE, AURAL AND HAPTIC

Discourse on the possibilities for experimentation have seen many artists and theorists orientate themselves around the role of mobile media as not just a miniature and mobile version of the conventional gallery space. UK's *The-phone-book Limited* have explored the emergent genres of SMS, MMS and ring tones to highlight the conventions and codes (compression, immediacy, intimacy) of these remediated and vernacular-driven discourses. For example, SMS poems being poems restricted to the formats of SMS compression (i.e. 160 characters). In *Proboscis*' 'urban tapestries' project, a section of London is navigated and reorientated through mobile location devices, making one recognise that mobile media helps reinforce place rather than destroy it; highlighting the persistence of delay in the practice of immediate co-presence.

Art Center Nabi, Seoul's new media centre (funded by South Korean giant, SK Telecommunication), has been pivotal in establishing mobile media projects that attempt to question the possibilities and potentiality of mobile media. In the *Resfest's Wireless Art Competition,* Nabi sought to get various International new media artists to make work for mobiles which resulted in little more than screen savers due to the current generation of phones at that time (2nd generation). In 2005, Nabi had a collaborative group INP (Interactive and Practice) – consisting of artists, engineers and media theorists – working to produce various mobile media projects such as *Urban vibe* in October 2005. In 2006, Nabi has conducted a mobile Asia competition to get mobile media (content made by or for the

mobile) and pervasive projects. And yet, what has been significant about these various projects around mobile media – from location aware projects conducted by INP to mobile movie making – has been the re-occurrence of the reel/ real, delay/ immediacy paradoxes. This undoubtedly has to do with mobile media's ability to epitomize a

This year in June the Pompidou featured a 'pocket movies' festival. The basement of the Pompidou was awash with a sea of dangling mobile phones. Once viewers adapted to the 'new-ness' of the media and stopped *looking at* the mobile phones as commodities and objects of desire and began *peering into* them as portals for creative product, they began to engage. But this was not an engagement of gaze, nor the glance, but rather akin to what Chris Chesher characterizes as the 'glaze' (2004). Drawing on console games cultures, Chesher identifies 3 types of glaze spaces – the glazed over, sticky and identity-reflective. For Chesher, these three 'dimensions' of the glaze move beyond a visual economy, deploying the filters of the other senses such as aural and haptic.

This formation of the glaze – a combination of aural and haptic into a 'hapral' – was apparent in the fact that spectators often stood with their ear towards the mobile phone, as if to listen to the pictures. The movies that were most popular were not those that featured vivid visuals, but, rather, those that featured compelling aural narratives. While much work by social scientists have explored camera phone ethnographies in locations such as Tokyo (Ito and Okabe, 2002, 2005) and Seoul (Lee, 2005; Hjorth, 2006, 2007), one of the features that is becoming increasingly apparent is the rise of other senses such as aural and haptic in the contextualization and making 'reel' these images.

Camera phone practices, as an extension of photography and snapshots, are about performing normalcy (Gye, 2005; Lee, 2005). This can be done by re-enacting 'reel' techniques, that is, analogue representational codes. Contemporary digital media is obsessed with the analogue that can be seen from its software (photoshop, final cut) to the fact that it doesn't try to resemble the actual, but rather the *reel* (Manovich, 2003). Through the rise of mobile media, and attendant forms of frames from SMS, MSM to SNS (Social Networking Software) the 'banal' reel is rendered 'newsworthy' and relevant to the receiver (Koskinen, 2007: 51). In this way, contextualizing is central to the content of mobile media and in the case of MMS it is a process akin to that of the postcard (Hjorth, 2005).

As with the postcard, there are archetypical "tourist" samples provided which then need to be contextualized in terms of the sender's experiences and voice otherwise the image is just rendered banal. Often camera phone practices re-enact older images and genres in the act of the *reel* (ode to the analogue). One of the significant features of the postcard is that it bears the markings of place, both in the form of actual stamp and also the damage occurred whilst in transit. The postcard is not a visual experience and vindicate it to visual aesthetics misses the point. Thus the co-presence and intimacy actually occurs on a haptic level, with the receiver feeling the texture of place in the postcard's grain. This is highlight by the need of readers to hold the postcard in the hand, rather than just look at it vicariously. Stroking the postcards, seeing if you can feel the sender's touch.

Although MMS images need to be contextualized to give them meaning beyond the banality of the everyday, postcards need to be contextualized from symbols of tourist clichés into the sender's "ordinary" interpretation and experience. But both involve the haptic. In particular, as my research in camera phone practices in Seoul, Tokyo, Hong Kong and Melbourne has noted, many respondents prefer to show and view camera phone images on the mobile phone while sitting with friends. It becomes a way in which to reflect and confesses. The phone is passed back and forth, the gesture of touch and perpetual symbolic gift-giving (Harper and Taylor, 2002) heightening the experience.

Indeed, one of the compelling factors to arise from mobile media, and this links back to its fusion of remediation and domestic genealogies, is the persistence of the ontology of the reel. However, unlike the 20th century 'reel' – in the form of the aural modes of address embroiled in 'screen-ness' – the mobile reel, and thus possible creative worlds and realities, is undoubtedly governed by the haptic (Richardson, 2007).

## HAPTIC SCREENS: GLAZING AT BANALITY

If, as art critic Robert Hughes (1990) characterized, 20th century modernism was the 'shock of the new', then could not mobile media, as indicative of 21st century new media, be defined as the 'banality of the new'? That is, as Terry Flew (2002) asks, what's so 'new' about new media? Certainly, Koskinen's prescient work in the field of mobile media as multimedia suggests so. However it is important to realise that the politics of banality is one deeply entrenched in the practice of the everyday. As Meaghan Morris (1990) notes, the politics of what is conceived as banal partakes in power relations of normalization and naturalization that should not be overlooked. Indeed many of the senses such as smell, touch and sound—that are so pivotal to memories and subjectivity—have been rendered insignificant to the tyranny of visual culture dominating 19th and especially 20th century media cultures. However, in the case of mobile media, with its history firmly entrenched in aural media such as telephone, radio and TV, the regime of the glaze could be about to take hold this century.

In Ingrid Richardson's compelling argument about mobile media she calls on the need to harness the importance of the haptic. Conducting a small ethno-phenomenological study on the use of phone-game hybrids, Richardson disavows the ocular-centricism prevalent in 'new media screen technologies' to focus on 'the spatial, perceptual and ontic effects of mobile devices as nascent new media forms' (2007: 205). As she persuasively observes, 'In order to grasp the epistemic, ontic and phenomenological status of screen media it is important to trace their ocularcentric legacy; by understanding this history we can then interpret how mobile screens in particular work to bewilder classical notions of visual perception, agency and knowing' (2007: 208).

Departing from what Intora and Illharco (2004) characterize as the multiple 'screen-ness' inhabiting contemporary

life, Richardson's argues, 'yet this 'frontal' relationship which is typical of our engagement with most screens—where the mediums of cinema, television and computer can be said to discipline the body more or less into a face-to-face interaction—is thoroughly challenged by the mobile screen (2007: 210). In conclusion, Richardson avows that mobile media disrupts 'any notion of a disembodied telepresence' deployed by much screen-based media; in turn, we can 'see emergent spatial ontologies of a kind never before experienced in such a collective and interactive fashion' (2007: 214). However, while Richardson's argues for a future in mobile media, particularly location aware mobile gaming, where the virtual and the actual become seamless, I would argue that the future, like the past, with be dominated by the persistence of the reel and delay. Two key features that will always be mediated by the glaze and its legacy in gaze and glance genealogies.

Whether it is a pervasive location aware game, or a mobile movie, the exciting contextual possibilities of mobile media is its related networked avenues and challenges to notion of co-presence and intimacy. That is, the more we try to overcome difference and distance, the less we do. This recites what Michael Arnold (2003) identified as the janus-faced nature of mobile media that operates to push and pull us, setting us free to roam and yet attach us to a perpetual leash.

As Arnold notes, the phenomenon of mobile communication is symptomatic of what Martin Heidegger characterized as 'un-distance'. The role of technology in the 20$^{th}$ century has always been to overcome some form of distance – whether geographic, physical, social, cultural, temporal, or spatial. But here in lies the paradox. The more we try to overcome distance, the more we overcome closeness. This is kernel of un-distance. Un-distance can be seen today in the practice of mobile media, particularly pervasive location aware projects that rely on the so-called immediacy or instantaneity of the networked. For anyone that has participated in a mobile pervasive game, they will quickly identify the lack of coherence between online and offline co-presence. The more we try to partake in the *politics of immediacy,* the more we succumb to the *poetics of delay.* This paradox, which governs the practice and theory of contemporary location aware mobile media is a phenomenon not to overcome (which is impossible anyway). Rather, it is in the gap between immediacy and delay that we can reflect upon, and indeed glaze, the practice of the game of what it means to intimate and co-present today.

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# From Maulbertsch to MMORPGs.
# On Digital Cross-Media Entertainment

Herbert Hrachovec

## Of Sky Patrons and Sky Patrols

A person familiar with the Star Wars trilogy and currently hooked to the remake of „Battleship Galactica“ may feel curiously attracted and at the same time puzzled when entering one of the grandiose baroque interiors, many of which can be found in Bavaria, Austria and Hungary. The sheer exuberance of the visual display of imaginary cosmic interaction has no match in contemporary architecture, but it can be regarded as akin to recent science fiction scenarios. As far as iconographic conventions are concerned, Jupiter and Superman are reasonably close relatives.

Consider Franz Maulbertsch's magnificent design for the Károly Esterházy College's chapel in Eger. At first it might strike you as a phantasmagoria of light, color and clouds, amply populated by airborne entities of mythological origin. But closer inspection reveals an intriguing interdependence of make-belief and realism.

The Hungarian coat of arms is prominent, as well as a host of liturgical paraphrenalia and ceremonial equipment. A council meeting is in session, contemporary scientific instruments are on display. This „Welttheater“ includes religion, history, politics and even science to achive a spectacular artistic synthesis in an exalted public space. Soon afterwards conditions changed. The French revolution triggered the fall of the aristocracy, whereas industrial technology provided the means for humans to actually fly, turning the baroque visions into a disempowered elite's nostalgia. Yet, this is only half the story.

Cinema has taken the place of manufactured dreams and – more recently – digital cameras have put the power of audio-visual showmanship into the hands of ordinary users. Science fiction movies, Batman, Supergirls and Spiderman show celestial spaces populated with heroes, villains and any kind of sophisticated, multipurpose wizardry. Pop culture seems to be heavily affected by pre-modern iconography. Consumer electronics allows people to capture and modify the visual surface of master exhibits of our „cultural heritage“. Experimental video art often uses the same equipment to explore the conventions of image-production in modern media society. A case in point is Thomas Binder's „TAUII“, a video based on

the fresco adorning the Eger chapel. It is impressive because of its startling approach towards the paintings appearance. Thomas Binder's video shatters cinematic conventions. It's components are cut-outs from the painting, performing a wild dance in a dynamic animated space as they bump into each other, dissolve and re-emerge to the accompaniment of a throbbing rhythm. Baroque complacency is exchanged for techno-dynamics. The artist offers a contemporary response to the challenge of the European architectural tradition.

And yet, in a way Thomas Binder's achievement is thoroughly tradtional and does not address the most provocative developments in the realm of virtual expolarions of space. The point is simple. All the dancing daemons displayed before our eyes are put into their orbit once and forever in a cinematic display. There is no way for a viewer to influence the developing spectacle; this much is unchanged from the 17th century. Digital entertainment offers a new option. Imagine that you could control the king and his entourage as they inhabit the representational space. This is precisely what networked games on the internet allow you to do. And some of them are precisely power demonstrations in the sky. „City of Heroes“ is a so-called „massive multiuser online roleplaying game“ based on the scenario of a virtual township endangered by all kinds of evil creatures and to be rescued by avatars operated by participants on the net. A rainbow, in fact, serves more or less the same purpose in Bavaria's Wies Kirche and a City of Heroes brochure.

But this continuity is broken the moment a prospective user is invited to pick her „character“, including its outfit, capacities and operative functions.

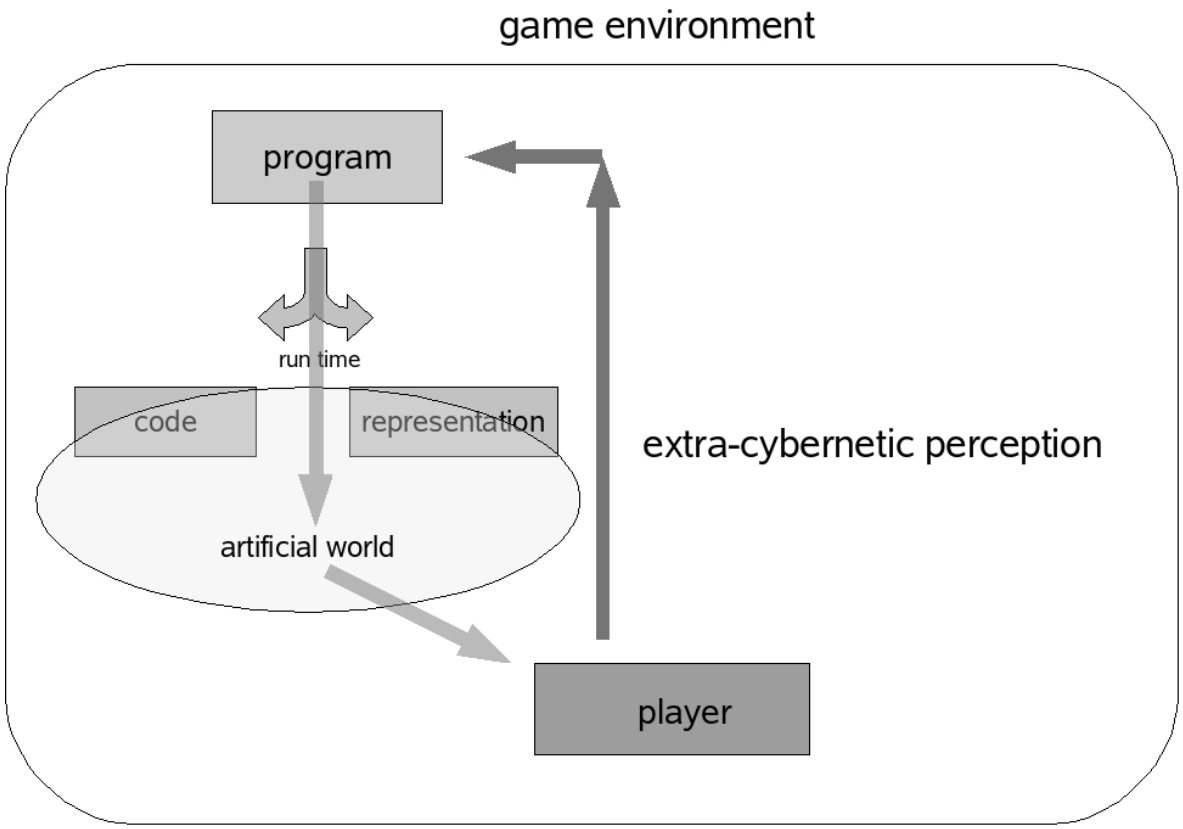
At this moment one enters into a world of technologically mediated, playful, social collaboration. The representational medium is turned into a stage for avatars of real life persons to act out a drama of their own choosing. Instead of being *impressed* by a showpiece they are *immersed* into an environment that demands constant attention as it essentially consists of inputs from the governing program plus challenges from fellow participants sharing the game environment. There is no novelty *per se*, everything has to be put in context to

be at all comprehensible. One might think of a TV show that hinges on phone-in from the audience. A closer inspection of the underlying logic of interactive digital coordination is therefore in order.

## The Architecture of Immersion

Interactivity has been a feature of artistic production since antiquity. Live performances are easily open to audience response but a related motive can also be observed in texts which address their readers or in pictures which take the habits of the beholder into account. Baroque designs are, in fact, well known for their attempts to draw the spectator into the depicted universe. It is against this background that the novelty of online gaming has to be assessed. Let us start with an example of well-established audience-participtation, namely the European song contest on. This is an entertainment program which turns on the suspense of who is going to win a competition. This much is similar to movie narratives or to the reporting of sport events. The difference, of couse, is the particular decision-making arrangement: those very viewers who tune in to see the show are invited to determine its outcome. The TV contest is carefully staged as a ritual culminating in a final resolution which, as it were, is in the hands of those who watch for the pleasure (and pain) of learning the outcome.

„City of Heroes“, by contrast, is certainly much more sophisticated. Instead of the broadcast studio's environment it offers a computer generated virtual world for all its participants. It is populated by avatars of every single player and it consists in arbitrarily many scenarios representing city life and strife. There is a wide variety of options available for exploring the general framework defined by the game engine. Viewers can affect the course of events of a TV show, they cannot change the immmediate sensual appearance of the production. They lack physical control of their delegates. Networked computer games allow their players to bodily determine the behavior of their avatars in a realm of shared representation. In addition to an observer's phantasies, intentions and judgements impinging on the representation of a world, her primary neurological reflexes can be tapped into in order to shape an artificial environment. Here is a sketch of the feedback loop:



Computer generated environments are implemented at „run time“ which can be synchronized with ordinary human behavior. The bodily movement of a game's participants can, in particular, be regarded as inputs to be directly fed into the very world those participants perceive and act upon.

Success at soccer depends on a player's ability to anticipate and to preempt his opponents movements. A game of poker demands similar guess-work as to one's partner's intentions. The distinguishing mark of the particular feedback we are considering here is that „run time“ does not mean a real life temporal sequence, but rather refers to the electronic cycles of a computer which *may* – by additional provisions – be synchronized with an agent's biorythm. A medical device can detect a failure of the cardiac system and automatically intervene. Or, as is the case in representational contexts, the rules governing the construction of a symbolic universe may include algorithms that can be triggered by sentient observers of the artificial world. Observation is directly transformed to actions changing the observational setting. Electronic circuits give rise to games that offer the opportunity to hook into the system of ordinary sense perception and explore – as well as exploit – its functions.

In one way this seems like a decisive triumph of tele-communications. A signal transmitted has been turned into an operative force, shaping the environment *emitting* signals. Thomas Binder's video seems a decorative nicety compared to the prospect of triggering change in cyberspace by involving oneself in sophisticated, audio-visual renderings of celestial narratives. There is, however, a serious drawback. The cybernetic feedback we have been exploring is inherently autistic. There is a price to be paid for linking the qualities of objects perceived to the whim of perception: such qualities are usually thought to be accessible to – and underwritten by – shared practices of a group of agents. Arbitrarily changing sense impressions are often taken as illusions. Entrapped in a clever mirror setup a person lacks corrective outside information and can be short-circuited into a deceptive double bind. This objection provokes an obvious reply. „Massively multi-player“ games are obviously designed to arbitrate between all those bio-bubbles. This does not stop the argument, though, because the question now becomes: What kind of information exchange takes place between monadic entities enmeshed in a universe which is ultimately governed by an equilibrium calculus.

## Feedback Politics

I have been presenting a rather linear development starting from bygone splendor, touching upon media technologies of the previous century, and ending up with the most recent, ultrafast and widely distributed implementation of imaginative, social, aeronautical mobility. One feature has been missing in this account: the point of the exercise is not to move ones fingers in sync with some data source. The sequence of shapes on the monitor has to be embedded in meaning, for otherwise it will be just random flickers, incomprehensible to the individual and even stranger to a group of players. Now, at this juncture of my report, the suggestion of progress is eclipsed by a more somber prospect. It has to be admitted that the „City of Heroes“ is basically a place of infantile posturing and shootouts. Mutants, daemons and villains are constantly threatening the inhabitants which derive their pleasure by exploring dangerous neighborhoods heavily armed and ready for a kill. I do not mean to be condescending or enter into a critique of this genre of entertainment, but one thing seems clear: the type of game we are considering combines some very advanced technology with a most atavistic set of mind. And, to make things worse, a main reason for the open-ended slaughter on display is closely linked to the very achievements praised before.

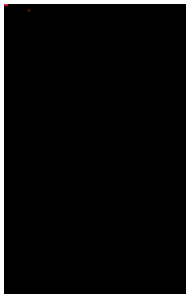
The question is: What kind of community will arise if you build virtual encounters on audio-visual imputs triggering response loops determined by instinct? Language as a means of expression and as a mediating inter-cultural force does only play a marginal role in this kind of battlefield. If people are deprived of a vocabulary to express their attitudes and restricted to their most basic bodily gestures chances are that they will resort to sex and violence. A globalized game engine exploiting immediate cross-network interventions is very likely to produce a dramatic saga of destruction, death and survival. Given the short circuit between individual bodily movement and the social aggregation of stimulus-response patterns on a global scale, the idea to juxtapose Maulbertsch and MMORPGs seems ludicrous. Pervasive surveillance of citizens by government agencies is a fact. Secret service agencies are known to employ all the ressources of the network. Regarded in this light „City of Heroes“ might well appear as a case of the Stockholm syndrome. Having been

taken hostage we now dutifully adapt our spare time to celebrate the violence we are subjected to.

Theoretical discouse on telecommunication technologies takes place in beautiful buildings, some of them decorated with exquisite paintings, and it purports to come to terms with an entirely different universe, consisting of selfregulating, consumer-induced data-flows. Academic work on internet society sometimes reminds me of the decorative ceiling of libraries, compared to massive multi-villain exploits, not to mention the bottomless depth of trivialities and vanities we have newly gained access to on the net. I close with an observation concerning the baroque heritage and a thought about current politics.

A tacit premise of my argument might be called the „tourism presumption". Only if one assumes modern, post-bourgois society and informal access to the locations of erstwhile exclusion „works of art" can appear as magnificent showpieces quasi exempted from their social setting. Taking into account their context of origin, one quickly realizes that they depended upon and gave expression to a highly prominent power structure, including an absolute monarchy, its feudal underpinnings and the concomitant complicity of the church. Many complaints against the decay of civilization are therefore missguided. I hesitate the thesis that one of the principal aims of baroque frescoes was to impress their viewers immediately, no questions asked, by sheer visual splendor. The most advances machinery to evoke awe and delight was used for this purpose. Present day secularized air traffic, metaphorical and literal, certainly lacks style, but one should think twice before turning this into an argument in favor of aristocracy. For theoretical discourse, which usually sides with its sponsors, to belittle the enjoyment of the masses seems itself to be a case of bad taste to me.

Where does that leave us? The crucial change we have been examining is the introduction of networked social feedback mechanisms into the domain of representational transactions. Games are a suitable starting point, but the implications are obviously far reaching. Our political system is built upon electing representatives and accountability towards their electoral base is a permanent matter of concern. Let me sum up by showing two pictures.



The imagery of these examples comes from the Middle Ages, but both are in actual use. Exhibit 1 is taken from „City of Heroes", it might be your avatar. The second man in knightly armor comes from a more traditional context. The 19th century statue of a watchman adorns the top of Vienna's city hall. The guardian of exhibit 2 has obviously been redesigned according to the needs of audience-response strategies. He is no longer the self-contained keeper of peace but a symbolic invitation to enter into the orbit of the communities life and services. The city council is actively eliciting the passer-by's feedback.

The smiling, thumbs-up, knight is a vivid reminder of the precarious nature of contermporary politics. Democracy is built upon bidirectional information flows within a representational system. For a major city this amounts to a complicated arrangement of interests and agents, mixed up in numerous smaller groups. It is most often impossible to reduce this complexity to the logistics of warfare and rapid data-transfer – yet we are being sold on decision-making a la „City of Heroes". Air control is a prominent case, think of New York 2001 and New Orleans 2005. It will take knowledge of history, a sense of art and an analysis of network interactivity to survive the next epiphany.

# Keeping social ties away from home: Being virtually together across continents through instant messaging

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## Abstract

Instant messengers (IM) provide a convenient and inexpensive way for people to have real-time long-distance communication with their friends, family, and colleagues on the Internet. Hence, this study was designed to explore IM's potential for helping people to keep their social ties to their hometown community and maintain their cultural identities when they are away from home. A survey of Korean students in US universities was conducted to find out their IM usage frequency along with other communication tools, and the geographical composition of their IM social networks. The findings show that people used IM to communicate with their peers and relatives in home country while they were living in a foreign country. Future research is suggested to fully understand whether IM has actually enabled people to retain and reinforce their native social norms and identity when they are no longer physically a part of their home place.

## Introduction

With the advent of the Internet, living abroad no longer means being disconnected from one's native culture; people can read up-to-date news about their hometown on the Web, watch broadcast programs in their home country through real-time video streaming services, search for various contents on the Internet in their native language, and communicate with others who share the same cultural background through online forums and chat rooms. By keeping virtual contact with their native culture, people may retain and reinforce their native socio-cultural norms even when they are not physically a part of their home place.

This paper reports the findings of a study which was designed to find out whether people actively maintain connections to those from the same native culture through the use of instant messenger (IM). By examining the influence of geographical proximity on the composition of one's communication network, the purpose of this study is to explore the way people use IM to communicate with their peers and relatives while they are away from home, to keep their social ties to their hometown community, and to maintain their native identities by means of this communication medium.

## Instant Messaging and Virtual Social Ties to Home

The Internet helps to bring people with shared interests or causes together globally and locally. According to the Pew Internet & American Life Project's survey in 2001, 84% of Internet users have used the Internet to contact or get information from a group, and 49% of those who used the Internet for such purposes said that the Internet helped them to connect with others with similar interests (Horrigan, 2001). The study also reported that 26% of Internet users have used the Internet to strengthen their ties to their local communities by email or other means. This suggests that communicating online and offline are not mutually exclusive, but people use both modes of communication interchangeably when interacting with others. In other words, people's social networks are no longer confined to their neighborhood and kinship ties in close physical proximity (Wellman & Gulia, 1999, p. 169), but can reach out across the globe by means of the Internet.

Still, Scholte (2005) argued that as the world becomes more globalized and people are more exposed to foreign cultures, they strive harder to preserve their own national identities (pp. 227-230). What Matei and Ball-Rokeach (2001) found from focus group interviews of ethnic

neighborhood residents in Los Angeles supports Scholte's argument in online environment – people made most of new online social ties with those of the same ethnicity. In addition, they found:

> During the discussion, a Korean woman said that she found it difficult to make friends when she first came to the United States. E-mail was for her a natural way to contact Korean friends who live far away. In her own words, through e-mail "it seems like they live close to me" (Matei & Ball-Rokeach, 2001, p. 559).

This is an interesting quote because scholars contend that email is a lower-bandwidth, less-rich communication medium than face-to-face communication because nonverbal cues are lost in text conversations (Walther & Parks, 2002). Yet, email seems to have sufficed for the Korean woman in the above quote to fill the gap in her face-to-face social bonding in the new country. Matei and Ball-Rokeach's observation is worth further exploration, especially as richer communication technologies such as IM with integrated voice and video chatting capabilities become available.

IM differs from email in that conversations flow almost synchronously and most IM applications are equipped with enhanced multimedia communication features. In addition, IM chats are similar to telephone calls in that both are mostly used for real-time conversation comprised of relatively short messages, yet they differ in that IM chats cost virtually nothing as long as one has Internet connection and access to a computer, whereas telephone calls incur additional charges for lengthy calls and long distance services. Hence, IM has good potential for those who communicate frequently with long distance contacts.

IM has become a popular communication medium in the last several years; the Pew Internet & American Life Project found in 2004 that 42% of American Internet users used IM, and the overall IM population grew by 29% since 2000 (Shiu & Lenhart, 2004). Although the results indicated that email was still the dominant form of online communication, 24% of the IM users said that they used IM more frequently than email. The IM usage rate is even higher in younger generation: In 2001, 74% of online teenagers were IM users (Lenhart, Rainie, & Lewis, 2001). Considering that ICQ, the first mainstream IM software, was introduced in only about a decade ago in November 1996, communicating over IM is quickly becoming a part of people's everyday lives.

The proliferation of IM as everyday communication technology brings the following question: When physical distance and communication cost is no longer a barrier, what would happen to the communication networks of the IM users who grew up in one cultural context and then moved to live in a new cultural context? According to social influence theories, people's attitudes and behaviors are affected by those of others in the same communication network (Monge & Contractor, 2000; Rice, 1993): In other words, the composition of one's network would inform the person's cultural orientation. Traditionally, people create more social ties with those in close physical proximity, so the amount of time one has been physically away from home would influence the composition of one's social network; however, geographical distance becomes meaningless when communicating online (Monge & Contractor, 2003, pp. 227-233).

Therefore, I designed this study to see whether those who are away from home actually use IM to keep their social ties to those living in hometown, and whether the geographical distribution of their IM contacts change depending on how long they lived in the new place. The following research question and hypothesis were generated to explore these questions.

> RQ: Compared to other communication media such as telephone, postal mail, email, and personal Web sites/blogs, do people use IM frequently to communicate with those in their home country?
> HP: The longer an IM user has lived in the new place, the more contacts in the new geographical location would have been accumulated, resulting in less percentage of IM contacts located in the IM user's home country.

## Methods

*Participants*

Participants (N = 26) in this study were Korean students who were enrolled in US universities and used IM to communicate with their friends, family, and colleagues both in and out of the US. Surveys were conducted primarily online: invitations to an online survey were posted on email listservs and community Web sites that serve Korean student bodies. The online survey asked the participants about their IM and other communication tool use, the geographic locations of their active IM contacts, and demographic information. Participation was entirely voluntary, and the participants were able to withdraw from the survey at any time without any kind of consequences to themselves.

*Measurement*

Whether the participant is a current active IM user or not was measured by asking whether the participant chatted with anyone during the past week from the survey date. Comparing the frequency of IM use to that of other communication tools was measured by asking the participants to rate the frequency of each of the five communication tools (Telephone, Letter (postal mail), Email, Instant Messenger, and Personal Website/Blog) on a scale of 1(rarely) through 5(often).

As for the geographic locations of one's IM contacts, the participants were asked to report only the contacts with whom they chatted at least once during the past week so that the data is of active members in their IM social network, not of dormant contacts. Answers to this question were gathered in an open-ended format, and then coded into four categories (US local (within about two hours driving distance), US long distance, Korea, and other international locations) to measure the percentage of contacts that were located in Korea and in close geographical proximity in the US out of the total number of contacts they chatted with in the previous week.

## Results

*Participants*

Of the 26 participants, 20 were at the doctoral level, 4 were at the master's level, and 2 were undergraduates. The average age was 32 (range from 20 to 42), and the gender distribution was equal (13:13). The participants used the Internet for 11 years and IM for 6 years on average. Among the 26 IM users, 22 of them reported that they chatted with at least one person during the past week from the survey date (9 females and 13 males), leaving the other four as non-active IM users.

*Frequency of Communication Tool Use*

Compared to other communication media such as telephone, postal mail, email, and personal Web sites/blogs, the overall results showed that the participants did not necessarily use IM the most frequently to communicate with their friends, family, colleagues, and others in their home country. Rather, email and telephone were the more frequently used methods of communicating overseas in general (see Table 1).

**Table 1** Percentage of the reported frequency of communication tool use

| | 1 rarely | 2 | 3 somewhat | 4 | 5 often | Median of frequency |
|---|---|---|---|---|---|---|
| Telephone | 7.7 | 11.5 | 23.1 | 19.2 | **38.5** | 4 |
| Postal mail | **83.3** | 8.3 | 0 | 8.3 | 0 | 1 |
| Email | 7.7 | 7.7 | 19.2 | 15.4 | **50** | 4.5 |
| Instant Messenger | 16.0 | 8.0 | **28.0** | **28.0** | 20 | 3 |
| Personal Website/Blog | **32.0** | 8.0 | 20.0 | 24.0 | 16.0 | 3 |

*Geographical Distribution of IM Contacts*

For this analysis, only the data reported by the active IM users were considered (n = 22). Figure 1 is a scatter plot chart that shows the relationship between the active IM user's duration of stay in the US and the percentage of the user's active IM contacts located in Korea. Figure 2 is the

same chart with the percentage of one's active IM contacts located in close physical proximity in the US (within around two hours driving distance) on the y-axis. Both figures show that there is no clear relationship between how long one has lived in the US and the physical proximity of their IM contacts. Only 9 out of the 22 active IM users had more percentage of active IM contacts in their local US community than in Korea, and there was no statistically significant difference in the duration of stay in the US between those who had more contacts in close geographical proximity and those who had more contacts in Korea. Therefore, the research hypothesis is not supported.

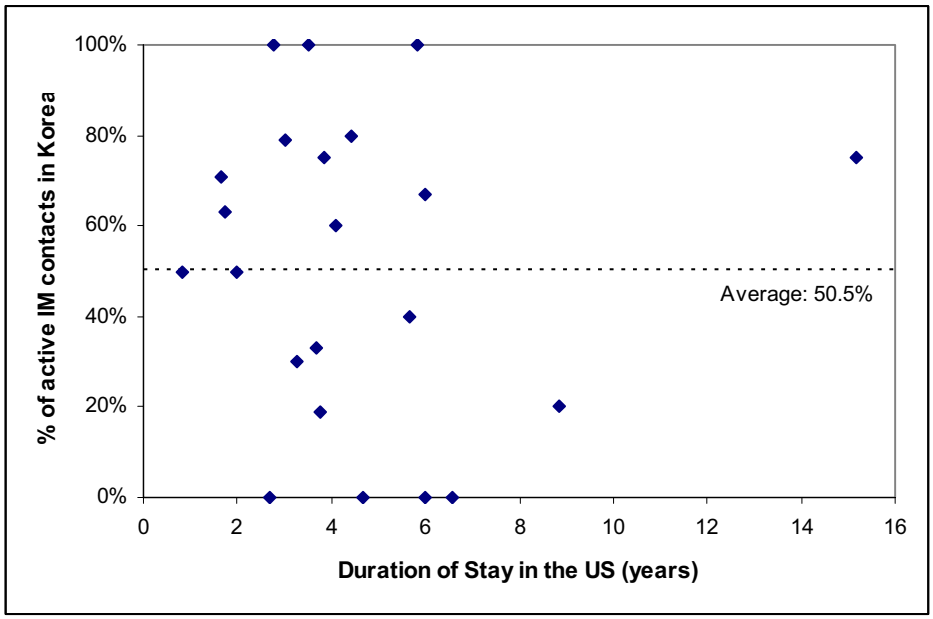


*Figure 1*. The relationship between the duration of stay in the US and the percentage of IM contacts located in Korea.

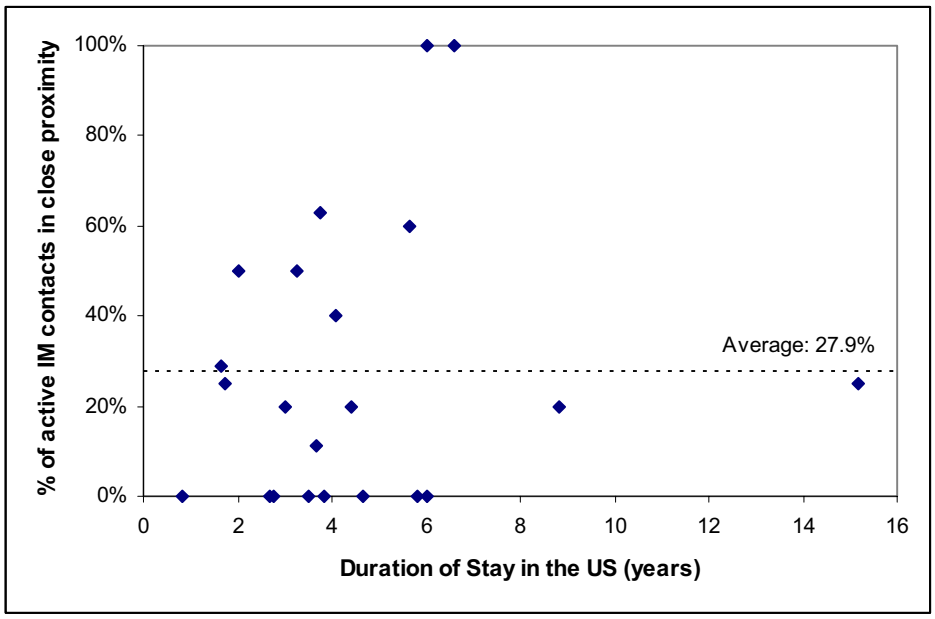


*Figure 2*. The relationship between the duration of stay in the US and the percentage of IM contacts located in close geographical proximity in the US.

## Discussion and Suggestion for Future Research

The first goal of this study was to examine how frequently people use IM, relative to other communication tools, to interact with their peers and relatives at home while they were away in a foreign country. Among telephone, postal letters, email, IM, and personal Websites/blogs, email was found to be the most frequently used communication tool, followed by telephone. Yet, the distribution of responses to the IM usage frequency suggests that IM is on its way to become a mainstream global communication medium, especially considering its relatively short history of consumer exposure.

The second objective of the study was to check the influence of geographical proximity on the formation of one's IM social network. Chatting with more IM contacts living in Korea than with those from the local US community would indicate the person's level of exposure to the native culture and social norms, thus helping the IM user to maintain the native cultural identity. Still, according to the proximity principle in social networks, the longer one stayed in the US, the more contacts in the new place one might have accumulated in one's social network. The result, however, shows that the proximity mechanism did not work as expected in the composition of people's IM social networks. Rather, the Korean students in this study had a higher average percentage of IM contacts living in Korea, and their duration of stay in the US did not influence whether they had more percentage of contacts in Korea or in their US local town.

The overall findings suggest that the Korean students employed IM to maintain their social ties to Korea when they were studying in the US. In this context, IM has a potential for helping people to retain and reinforce their native social norms and identity even when they are no longer physically a part of their hometown community. Nevertheless, to fully support the proposition, I found that the following limitation needs to be addressed in future research: That is, I did not investigate any special quality of ties and the structural properties of social networks that facilitate the maintenance of social norms and identity. For instance, the IM contacts located in the US might have all been Koreans, which I did not verify in this study. In addition, Lee, Sobal, and Frongillo (2003) noted that when asking one's boundary of social network, i.e. the number of close friends in in-group and out-group, it is also important to ask frequency or intensity of interactions with such contacts because not all out-group contacts may necessarily share the same amount of attention with in-group members (p. 293). Also, contacts from different social contexts, e.g. friends, family, or colleagues, could exhibit different tie characteristics and influence. Therefore, these multiple dimensions of one's social network structure as well as the process of cultural identity maintenance should be studied further to better understand the relationship between IM social networking and retaining cultural identities while being physically away, but being virtually together.

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# Converging Theories: The Age of Secondary Literacy

Secondary literacy can best be characterized by the fact that although rational reasoning is dominant in scientific and even everyday thinking, communication technology is capable of mediating experiences as if they were direct, i.e. without mediation. (I am applying the term in a different sense from that used by, on the one hand, Walter J. Ong and, on the other, Wolfgang Coy.[1]) Accordingly, the pressure to formulate experiences verbally is decreasing; the birth of a new rationality is imminent. In the age of literacy where alphabetical writing is the dominant medium (in expressing and preserving knowledge and ideas), there is, due to the special character of language and that of writing itself, a certain detectable convergence with regard to methodology and the thought process that is tailored in accordance with the ruling principles of mathematics and logic. However, this convergence is accompanied by opposing traditions and unsolvable paradoxes. In the age of secondary literacy, traditionally opposed schools of philosophy, as well as new demands implied by recent scientific and philosophical inquiry, have at some points been converging. New mobile devices that condense all the previous inventions of communication technology play an important role in this process because they are capable of becoming the primary mediator of experience. This capability opens a path towards developing a mutual conceptual background that can help theories converge. To prove my hypothesis, I will first outline the main characteristics of the literate mind; then I will attempt to show converging tendencies, focusing on philosophy and some explicit scientific demands. Before the conclusion proving my hypothesis, I will try, briefly, to recapitulate the importance of perceptual experiences with regard to abstract reasoning.

## I. Converging Methodology

The emergence of language in our phylogenesis has far-reaching effects both from a cognitive and a social point of view. In accordance with the *social brain* hypothesis[2], language as a new representational system was able to create a cohesive background that furnishes the main rules for everyday activity and criteria for identity. This was possible because, via language, thoughts become objectified, i.e. sharing and handling these thoughts is made much more effective with the help of fixed symbols, specifically, with words. On the other hand, since words define categories, in a certain sense the processing of perceptions becomes quicker. Being able to represent experiences or thoughts via language means, at the same time, being able to reconstruct them in accordance with the limits of verbal expression. This implies that experiences/thoughts must be linearly ordered, just as words are sequentially arranged. The other decisive feature of language is that it mediates the demands of the speaker. In accordance with the social brain hypothesis, we talk to others primarily to cooperate/coexist with them and thus to influence their actions according to our demands. Considering ontogenesis, this perspective is strictly bound to the given situation: learning how

[1] With regard to W. J. Ong see "Schmandt-Besserat on Writing and Consciousness – Ong Sessions at MLA 2006 and CCCC 2007. Ong on Secondary Orality and Secondary Literacy": http://ongnotes.slu.edu/?p=190; and "Secondary Orality and Secondary Visualism": http://libraries.slu.edu/sc/ong/digital/texts/lectures/lecture1.pdf. Regarding Wolfgang Coy, see his "Text and Voice – The Changing Role of Computing in Communication", in: Kristóf Nyíri (ed.) *Mobile Communication. Essays on Cognition and Community*, Vienna: Passagen Verlag, 2003, pp. 93 f.

[2] See Robin Dunbar, "Are There Cognitive Constraints on an E-World?" in: K. Nyíri (ed.) *Mobile Communication. Essays on Cognition and Community*, Passagen Verlag, Vienna 2003 p. 58

to use words in accordance with our purposes and understanding the words of others is possible via practice which is embedded into the given situation.

Alphabetical writing, which is a highly effective and successful *external symbolic storage system*[3], makes the abovementioned characteristics of language more radical, since written words are necessarily out of their original context. The orienting details of the situation have to be verbalized and the linear structure is even stricter because there is no possibility of referring to previous or coming details with the help of gestures or facial expressions. Moreover, since written texts are created to preserve knowledge, they must remain unambiguous within radically different circumstances.

After the invention of alphabetical writing, at the early stages of its spreading use, several implicit reflections emerged regarding the advantages and limits of writing. Heraclitus complained about the inability to express timeless and general truths. And we can add, this is because of the lack of proper concepts. In the form of logos, he presupposes a higher and eternal order beyond the phenomenal world. Plato talks about the thing-like character of writing, which fallaciously suggests that knowledge is possible out of the human soul. These early deliberations reveal some important characteristics of the literate mind. Heraclitus' demand for highly abstract concepts, the presupposition of a higher order which is comprehensible exclusively via abstract concepts, and knowledge bound to the soul and opposed to thing-like entities all create basic presuppositions of western metaphysics. A rather complex and abstract framework of concepts gradually evolved, and systematic methodological principles took form for the sake of being able to record and interpret verbalized thoughts. This systematic analyzing attitude and the expectation of clear-cut categorization complemented by the ruling principles of logic and mathematics create a special one-sidedness in philosophical thinking. Reason was comprehended separately from practice or any engagement with the external world. This separation of practice and reasoning, and that of the body and mind leads into paradoxes and, of course, diverging trials to solve them. (Consider, for example, the tradition of empiricism vs. rationalism, or the later one of logical positivism vs. metaphysics).

The analysis of language implies permanent *mental discomfort*[4] because of the lack of a satisfyingly transparent and clear-cut way of expression. Wittgenstein's effort to grasp how language works reveals the need for a switch which embeds language into everyday practice. Consequently, several important features of language come to light.

Considering how language works and the characteristics of language from which difficulties arise, Wittgenstein concludes that, due to grammar, we are often inclined to use substantives as if they were things.[5] Just as in the case of the 'mind', "[t]here are the sounds of the words, and all sorts of bodily sensations connected with gesture and intonation. Where we are liable to go wrong is in supposing that sensations connected with words are somehow 'in the mind'. The phrase "in the mind" has caused more confusion than almost any other in

[3] See Merlin Donald, *Origins of the Modern Mind. Three Stages in the Evolution of Culture and Cognition*, Harvard Univ. Press, Cambridge, (1991) 1993, p. 308-325

[4] The phrase refers to Wittgenstein. Cf. Wittgenstein's deliberations regarding the reason of mental discomfort "The problem may seem simple, but its extreme difficulty is due to the fascination which the analogy between two similar structures in our language can exert on us." (Wittgenstein, *The Blue and Brown Books,* Ibid. p. 26) See also: "we find that there is puzzlement and mental discomfort, not only when our curiosity about certain facts is not satisfied or when we can't find a law of nature fitting in with all our experience, but also when a notation dissatisfies us – perhaps because of various associations which it calls up". (Ibid. p. 59)

[5] "[o]ne of the chief troubles is that we take a substantive to correspond to a thing. Ordinary grammar does not forbid our using a substantive as though it stood for a physical body." (*Wittgenstein's Lectures. Cambridge, 1932-1935* Oxford: Basil Blackwell 1979, p. 31/2)

philosophy."[6] The other key characteristic of language is closely related to its usage. As Wittgenstein formulates it, "our language is tempting us to draw some misleading analogy. This should remind us of the case when the popular scientist appeared to have shown us that the floor which we stand on is not really solid because it is made up of electrons".[7] That is, there are different language games, and the necessity of the switch between them is not always reflected. This observation might suggest that being able to communicate multimodally, i.e. not only via language, would make these switches much easier to handle. Multimodality makes the interpretation of a given perception less ambiguous. Considering Wittgenstein's example, seeing the floor and seeing the particles of the wood (with the help of previous experiences and some knowledge of physics) makes the difference between the two kinds of solidity obvious, i.e. it clearly shows the misleading nature of analogy caused by language.

## II. Towards a new rationality

Secondary literacy as the age of high rationality of the literate mind complemented by multimodality strengthens the tendencies that were emerging since the late 19th and early 20th centuries. The birth of photography and later, that of film, the invention of the telegraph, the telephone, and the gramophone, just to mention a few new devices of the time, had considerable impact on what was, until then, apparently immutable concepts and accustomed dualisms.

Being able to record not only propositions, but images and situations (thanks to photography), and being able to mediate live voices (due to sound recording and transmitting technology), help return us to the vivid mundane world of everyday activity as opposed to the mute and distancing world of texts. Casting a glance at the history of philosophy, we can see that the emerging pragmatism suggests taking into consideration the practical issues of life as opposed to mere theoretical reasoning. Dewey formulated the demand for a new theory of knowledge "which sees in knowledge the method by which one experience is made available in giving direction and meaning to another."[8] Dewey notes that traditional dualism implies a certain one-sidedness in practice, i.e. the traditional opposition of mind and body in practice means a focus on only one of the pair at a time.[9] The importance of environment and its close relation with the human mind is another crucial insight of this time. Think of Henri Bergson's effort to resolve the abovementioned dualism via perception and action, which places human beings within the framework of everyday activity rather than within that of reasoning.

Decades later, this embeddeness played a central role in Heidegger's philosophy. Being-in-the-world means we are engaged in a certain activity and are committed in this acting upon the world. The emphasis on *thrownness* into the surrounding world furnishes the basis for a criticism of artificial intelligence research with roots in logical positivism. AI research is based on the conviction that human reasoning is a symbol-manipulating process: each element of a thought process can be formalized in accordance with the rules of logic. Its first steps were based on an attempt to define the nature of knowledge with the same formal rigour that was then popular in the world of mathematics. This conviction is possible because its focus is

[6] *Wittgenstein's Lectures,* Ibid. 1979, p. 114

[7] Ludwig Wittgenstein, *The Blue and Brown Books. Preliminary Studies for the Philosophical Investigations*, Oxford: Basil Blackwell (1958) 1984, p. 48

[8] J. Dewey, *Democracy and Education. The Middle Works of John Dewey 1899-1924.* Vol. 9, Carbondale and Edwardsville: Southern Illinois Univ. Press 1985. p. 354/5

[9] See J. Dewey, *Democracy and Education.* Ibid. p. 346

on theoretical knowledge that takes form in a logical order of propositions. Terry Winograd and Fernando Flores stress the importance of

> the shift from an individual-centered conception of understanding to one that is socially based. Knowledge and understanding (in both the cognitive and linguistic senses) do not result from formal operations on mental representations of an objectively existing world. Rather they arise from the individual's committed participation in mutually oriented patterns of behavior that are embedded in a socially shared background of concerns, actions and beliefs. This shift from an individual to a social perspective – from mental representation to patterned interaction – permits language and cognition to merge.[10]

That is, the authors try to apply some of the main concerns of Heidegger, a prominent figure of the other side.

Considering the different views on perception in, for example, the field of epistemology, a type of convergence emerges. On the basis of the traditional mind/body dualism and with the dominance of theoretical knowledge, diverging solutions and solid anomalies characterize this field (consider sense-data theory and the problem of mind-independent objects, or direct realism and/or disjunctivism and the load of skepticism). Convergence emerges due to the change of focus carried out by the representational theory of the visual mind, according to which there are two kinds of visual representations:

> visual percepts and visuomotor representations. The former serves as input to higher human cognitive processes, including memory, categorization, conceptual thought and reasoning. The latter is at the service of human action. From the standpoint of our version of the 'two visual systems' hypothesis, vision serves two masters: thinking about, and acting upon, the world.[11]

The change of focus means the inclusion of action.

> We like RTVM precisely because we think that it avoids the pitfalls of both sense-datum theory and disjunctivism. RTVM is often called 'intentionalism' because it makes the basic claim that the content of a visual experience crucially depends upon the 'intentional' properties that the experience represents objects as having. According to the teleosemantic version of visual intentionalism …the human visual system has been selected by evolution for carrying information about (or for processing) a particular class of properties instantiated in the environment of early humans. According to visual intentionalism, what matters to a visual experience – what makes it the experience that it is – are the properties that are represented in the experience, not the particular objects that happen to exemplify the properties.[12]

Directing attention to primordial functions sheds light on the misleading character of the traditional framework. The role of environment is obvious if we consider that acting upon the

[10] Terry Winograd, Fernando Flores, *Understanding Computers and Cognition. A New Foundation for Design*, New York: Addison-Wesley publishing Company, Inc. 1986, p. 78; See also my review of this book, Zsuzsanna Kondor, "Dasein és design", in: Világosság, 1989/11 pp. 879-880

[11] Pierre Jacob – Marc Jeannerod, *Ways of seeing. The scope and Limits of Visual Cognition*, Oxford Univ. Press, (2003) 2004, p. 45

[12] Ibid. p. 16

world is primordial compared to abstract reasoning. On the other hand, it reveals that it is not separated objects with solid contours, but the situation and certain details that have importance.[13]

## III. Converging Experiences

Higher cognitive functions such as reasoning need categories, sometimes highly abstract categories. According to the cognitive theory of metaphors, categories, even highly abstract ones, are related to mundane everyday experiences and activities. As Lakoff put it, "conceptual structure is meaningful because it is embodied, that is, it arises from, and is tied to, our preconceptual bodily experiences. In short, conceptual structure exists and is understood because preconceptual structures exist and are understood."[14]

According to Lakoff, the preconceptual level is determined by kinesthetic image schematic structures[15] and basic-level categories. The latter do not overload memory capacity and are closely bound to motor activity. (Consider, for example, the basic-level category of 'chair'. It has many subordinate categories, i.e. there are great many kinds of chairs, which means a considerable load on memory. And to its superordinate category, 'furniture', there is no chance of attaching one special motor action.)[16] In Lakoff's account, image schemas are crucially important since they play "two roles: They are concepts that have directly understood structures of their own, and they are used metaphorically to structure other complex concepts."[17]

As we can see, perception plays a crucial role both in acting upon and in gathering information for thinking about the world. Perception is also vitally important in the development of science.[18] The potential of perception to persuade or convince is considerable, both with regard to the science/folk-theory relation and the horizon/limit of perceptible phenomena. That is, the extension of perception can open up new perspectives. Of course, specialization means that different kinds of methods and technical accessories emerge, but converging questions arise due to possibly mutual perceptual experience.

Think of the question of reality in the mobile age. Is there any reason to distinguish virtual and real in the case of a location-sensitive and at the same time location-independent device? What should be considered real, the given circumstances and the concomitant tasks,

[13] Cf. Lakoff's concern of categorization. He suggests that categories are not comprehensible as sets. Rather there are "fuzzy boundaries", prototypes, different degrees of membership, contrasting elements, close relations to experiential world, exceptions, etc. See George Lakoff, *Women, Fire, and Dangerous Things. What Categories Reveal about the Mind*, Chicago and London: The University of Chicago Press, (1987) 1990

[14] Ibid. p. 267

[15] Kinesthetic image schemas originate from everyday bodily experiences and mean certain, relatively simple spatial relations such as: containers, paths (movement in space with a starting and ending point including direction), links (regarding security and its source), forces, balance, different kinds of orientation (up-down, front-back, part-whole, center-periphery, etc.) For more details, see Ibid. pp. 271-278

[16] For a short introductory summary of basic-level categories, see Lakoff, *Women, Fire, and Dangerous Things.* Ibid. p. 46

[17] Ibid. p. 283

[18] "The whole underlying problem, ultimately, is that we lack experimental observations in the region where quantum and gravitational effects both matter" – says physicist David Deutch. (Michael Brooks, "Reality Check", in: *New Scientist* 23 June 2007, p. 33) That is, even in the highly mathematized realm of physics, there is a need for perceptual support.

or those engendered by the mediated-from-afar via mobile devices? Is there any relevance to the distinction between real and virtual when considering function and effect?

Not only social sciences and humanities face these questions. A similar question emerges in the field of quantum physics. The intuitive idea of so-called *local realism* (which Einstein shares as well) suggests that "a particle cannot be instantly influenced by a distant event, and that its properties exist independently of any measurements".[19] Although the implications of quantum physics[20] suggest that "[t]he world could not be local and real", poses the question of whether it is either local or real. The various experiments supporting quantum theory led to the conviction that it is possible that "there is nothing inherently real about the properties of an object that we measure. In other words, measuring those properties is what brings them into existence. …So does the universe exist independently of measurements?"[21]

We can see that similar difficulties emerge in the field of epistemology with regard perceptions and higher cognitive functions. This turn in the focus of philosophy overwrites certain notions, and a similar demand has been formulated by Caslav Brukner with regard to physics: "We need to rethink and radically revised our basic physical concepts before we make the next big breakthrough in physics."[22] And this seems to be obvious if we think of the conceptual framework in which we try to grasp the consequences of quantum physics. The concepts of this framework are tailored according to physical experiences which are interpreted in accordance with the literate mind that is striving for clear-cut categories.[23]

## IV. Conclusion

When everyday experiences can involve confusion regarding reality and locality, and when there is tension between locality and reality in the field of physics, our traditional conceptual framework itself can be queried. The philosophical discovery of the importance of perception and action, and their relation to abstract reasoning, suggests a reconfiguration of some crucial concepts. Mobile technology catalyzes this process, since in the broad scope of everyday experience, perceptions suggest that some familiar constellations have been changing. Communication complemented with multimodal accessories utilizes the obvious power of visually-gained information (although we are often unaware of this), and accordingly makes it easy to mediate experiences non-verbally. Finally, since mobile devices are capable of supplanting most previous communication technology inventions, they can furnish a mutual framework of experience.

[19] Ibid. p. 31

[20] "In our experience, objects have definite location in space and a limited range of influence. According to quantum theory, however, a pair of particles would be able to share information about each other's quantum states – and sometimes influence them – even where the distance and timing involved meant that no signal could have passed between them." Ibid. p. 31

[21] Ibid. pp. 32

[22] Ibid. p. 32

[23] Cf. the classical categorization recapitulated by Lakoff, *Women, Fire, and Dangerous Things.* Ibid. p. 152

# The cellphone as a conceptual category

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## Introduction

We can think of conceptual categories as having a variety of dimensions, where the dimensions possess a variety of smaller aspects. These dimensions and aspects define the content and structure of concepts. The major question that the present paper addresses is this: What are the major dimensions and aspects that characterize the concept of cell phone?

How can we find out? One way to study it is to find linguistic examples in which people talk about cell phones. The way in which and the frequency with which people talk about the various dimensions and aspects of cell phones can give us a good idea of the content and structure of the concept. My focus in this talk is not on the physical dimensions and aspects of cell phones but on those nonphysical dimensions and aspects that tell us something about how people think and feel about and relate to cell phones.

A large part of this system of everyday knowledge seems to be presented and hidden in the metaphorical language people use about cell phones, as they discuss them. For this reason, one of my major claims is that this metaphorical language constitutes a gold mine of examples from which we can gain valuable insight into the concept of cell phone.

In order to figure out the hidden content and structure of the concept of cell phone, conceptual metaphor theory (see Lakoff and Johnson, 1980; Kövecses, 2002) provides us with an excellent tool. By examining the most common "source domains" as they apply to the "target domain" of cell phone, we can find out what the main dimensions and aspects of cell phones are and how they are structured. In other words, I will use conceptual metaphor theory as a diagnostic tool. This theory of metaphor maintains that we conceptualize a domain (the target) in terms of another (the source) by means of seeing a set of correspondences (or mappings) between the two domains. Often, the logic of the source is mapped onto the target.

### Method of analysis

To find out about how people conceptualize cell phones, I did two searches on Google: one with the phrase "cell phone is like," the other with the phrase "cell phones are like." The phrase "is/are like" indicates the kinds of entities and processes to which people compare cell phones. Some of these comparisons are based on literal similarities, while others on figurative ones, that is, metaphors. As we will see, the metaphors are especially revealing as regards the conceptualization of cell phones.

The two searches yielded several thousand hits. Out of these, in both searches only the first one hundred examples were kept and taken into account. Since many of the 200 examples revealed the same metaphors or they were literal analogies, they were left out of consideration. Altogether, the present study is based on nearly 80 examples. In the talk, I will refer to these as "the data."

## Function

The first general dimension of the concept of cell phone I will discuss is that of function. This is a dimension that appears to be talked and thought about both through literal and figurative comparisons.

The most commonly used object in the data to which people compare cell phones is the computer. For many people cell phones are like small computers, which of course they are. In such cases, people can be said to literally think of cell phones as computers.

However, it seems that for some other people cell phones, or at least some cell phones, are not computer-like enough. These people use the cell phone-as-computer comparison as a metaphor, rather than a literal analogy. Take the following example:

If **cell phones are like** little computers—a comparison many pundits like to make these days—then you'd probably want them to perform more computer-like tasks **...**
tech.yahoo.com/blog/samiljan/962 - 32k - **Tárolt változat** - **Hasonló oldalak**

Clearly, for such a person there are not enough literal similarities between cell phones and personal computers; therefore, they they can be said to think about cell phones as computers metaphorically.

More importantly, the computer-like features of cell phones seem to be related to the dimension of function as regards cell phones. They share with computers such functions as storing information, net access, communication with others, and so forth. Many of these have to do with the functions of the human nervous system. Since the computer serves (in some views at least) as the model of the human nervous system and as the model of the cell phone as well, the cell phone can be seen as a model for central functions of human beings. In this sense, the cell phone is the objectified version of a human being. This objectified version can be handheld, carried, and easily manipulated with the human hand.

The size is small, which is almost invariably defined in relation to personal computers. People in the data commonly describe cell phones in this way: "A cell phone is like a really small/a tiny/a mini computer."

Its size and easy manipulability make it a perfect tool—a tool that can take over and perform several important cognitive functions (such as memory). Thus, the cell phone is an objectified cognitive tool that humans find easy to deal with most of the time. Its major advantage over computers is its size and the easy maintenance of communication with others (but also with oneself) that its size affords. This kind of conceptual fusion is called conceptual integration by Gilles Fauconnier and Mark Turner (2002).

The objectified version of a human being that performs a variety of useful tasks is easily regarded as a friend. Here is one example from the data:

> Hi all, this is Hsiao-Ying and her cell phone, Buddy. Cannot think of any other names better than this because my cell phone is like my buddy. In the morning, Buddy is my alarm clock who wakes me up. When shopping, Buddy is my calculator. When being bored, Buddy is my mini play station. Buddy is with me 24/7. I like to take pictures very much and Buddy is also helpful whenever I want to do so. Although the quality of the pictures is not as good as the quality of a real camera, it is really convenient. Please see the album: **NY Images** of my recent collaboration with Buddy.

Cell phones, like friends, help us do things, play with us, and spend a lot of time with us. But the cell phone is conceptualized not only as a computer or a friend but also as a variety of additional tools. One of these is the TV set.

Cell phones are also viewed as mobile offices and personal wallets. In these cases, cell phones help us store business-related or personal information.

Most obviously, however, cell phones are compared to telephones. To be able to talk to someone who is not present without being tied to a particular location is a major function of cell phones.

Given the wide variety of functions for which cell phones can be used, it is not surprising that they are also metaphorically referred to as Swiss army knives.

In sum, the metaphors and literal analogies we have seen above display the wide variety of functions cell phones are used for. Many of the functions reflect cognitive functions humans engage in. For this reason, we can think of cell phones as objectified versions of human cognitive abilities that are integrated into a single handheld tool.

## Significance

How do people see the significance of cell phones for their lives? Given the many important cognitive functions that cell phones represent, we can expect cell phones to be highly valued by their users. Indeed, in a large number of cases people think of having a cell phone as an absolute necessity. There is a distinct set of metaphors in the data that suggest the inevitability of possessing a cell phone.

First, the cell phone is compared to air and food, which are basic necessities of, or preconditions for, biological life. The metaphor suggests that in the same way as air and food are preconditions for life, so is a cell phone. A special case of this is when cell phones are thought of as oxygen.

Second, people also use the related metaphor of lifeline. The metaphor suggests that without a cell phone one cannot function in the world; it is the lifeline that connects us with our energy source. The cell phone corresponding to the lifeline provides the connection with the energy source. The connection can only be broken very briefly, as indicated by the scuba diver metaphor. The scuba diver depends on his energy source with which he is connected through the lifeline and the connection cannot be cut off for a long time without jeopardizing his life. In the same way, the user of a cell phone cannot function long in his or her social world without creating problems in his or her social world.

Cell phones are also viewed as bodily appendages. It follows from the logic associated with bodily appendages that we carry them around all the time. Appendages can be extra limbs on the body and can take the form of the arm. Appendages can be used in a variety of functions but the arm extension is specifically used for holding, touching, and manipulating objects. In the metaphor, this corresponds to maintaining contact with other people and the world at large.

The flip side of having access to other people and the world is that other people and the world also have access to us—whether we want it or not. This is an aspect of cell phones that I will discuss in more detail in a later section.

Another group of metaphors that directly addresses the issue of the significance of cell phones to people centers on body organs.

Let it be our personal life, business life or the professional life; **cell phone is like** an organ of the body we carry all the time. **...**
telecomforyou.blogspot.com/2007/05/cellphone-numbers-easy-to-search-choose.html - 74k –
Tárolt változat - Hasonló oldalak

The organ can be the eye, the hand, or even cells in the body. The same logic that applies appendages also applies to such body organs: they are always with us, and the same goes for cell phones.

There is, however, an interesting difference between conceptualizing cell phones as air, food, and lifeline, on the one hand, and as appendages and body organs of various kinds on the other. The difference comes from the metaphorical logic of the two groups of metaphors. In the lifeline group, the necessity of possessing a cell phone is portrayed as absolute, as a must without which social life is impossible. In the organ group, no such strong claim is made. One can live without an organ; similarly, one can function socially without a cell phone. However, social functioning is greatly improved if one has a cell phone. In other words, the two groups of metaphors represent different degrees of the necessity of having a cell phone.

**Not having a cell phone**

If possessing a cell phone is an absolute necessity (lifeline) or a basic necessity (body organ), the question arises how people conceptualize not having a cell phone. Will they correspondingly see this state as one that endangers social life (makes social life difficult)?

One metaphor that people came up with in the data is that being without a cell phone is like being without water in the desert.

| | | |
|---|---|---|
| when you need a cell phone. We seek to ship every order the same day that it is paid, we know that being without a | **cell phone is like** | being stranded in the desert with no water. We are not always able to do it, however, we are successful over 90% of the time |

If you do not have water in the desert, your life is in danger; if you do not have a cell phone, your social life is in danger. Not having a cell phone is also compared to torture. This corresponds the (unbearable) difficulties that life without cell phones may mean.

Although the difficulties that this state can cause are considerable, they are not absolutist in the sense that one's social life is not jeopardized.

The same, less absolutist necessity is reflected in some other metaphors, such as the "disabled person" metaphor. When we are disabled, we have difficulties, but our lives are not in immediate danger. Likewise, our social life is made difficult but is not impossible if we do not possess a cell phone.

The comparisons as regards not possessing a cell phone go beyond not having access to life-supporting needs and body organs. The metaphors take their source domains not only from the biological realm but also from the social realm. An example from this realm includes "a cell phone is like being an American and not knowing English." An American who does not speak English is not quite an American. In the same way, a person who does not own a cell phone is not quite a full-fledged social being.

Another theme regarding the non-possession of a cell phone takes us to the realm of what's fashionable and what's not. The metaphor that came up in this connection is that someone who does not have a cell phone is like someone wearing last year's sneakers. Someone who does not have a cell phone, especially among teenagers, runs the risk of becoming a socially insignificant person in his or her group.

## Effect

Through the metaphors found in the data, people make explicit several effects of cell phones on their lives. From the examples it is not always clear whether the effect reported is presented as an effect on the person reporting the effect or on other people. Though important from a sociological perspective, in the present discussion I will not be concerned with whether the effect is on the person reporting it or it is on somebody else.

In the data under consideration, it seems that the negative effects significantly outnumber the positive ones. Having and using a cell phone is often conceptualized as an addiction—either generally or in some specific form, such as addiction to drugs, coffee, or cigarette smoking:

"**Cell phones are like** cigarettes," Matz said. "We all know they're bad for us, but alas, we won't do anything about it until the medical reports come out 10 **...**
www.cavalierdaily.com/CVArticle.asp?ID=21576&pid=1224 - 11k - **Tárolt változat** - **Hasonló oldalak**

The example applies the logic of cigarette smoking to conceptualize the use of cell phones. Although we know that smoking is not good for our health, we still smoke, and we only do something about it when we see some worrying signs of its effect on our health. In the same way, we seem to be oblivious to the negative effects of cell phones, and we use them without paying attention to its bad effects. Some of these negative effects will be mentioned later on in the section.

The effects are also compared to new toys for children and Venus's flytraps. In the former case, people are attracted to their new cell phones as children are to their new toys: they use them a lot for a short time, but then they lose interest. In the latter case,

people, and especially children, are lured into buying cell phones in the same way as flies are enticed by the bright colors of the Venus flytrap.

But addiction and attraction are not the worst kinds of states that people can enter as a result of the use of cell phones. People can entirely lose their freedom to act. This is portrayed by the prison and shackles metaphors. But the view of cell phones as constraining freedom comes through especially in the leash metaphor:

I can certainly understand the attraction in the case of true emergencies, but otherwise, to me, carrying a **cell phone is like** being on a leash. No thanks. **...**
fodors.com/forums/pgMessages.jsp?fid=134&tid=35002678&numresponses=49&start=50&screen_nam... - 45k - Tárolt változat - Hasonló oldalak

If we are on a leash, we can't move around at will. If we carry around a cell phone and are always accessible to others, we cannot act the way we want. This reasoning is based on what is known as the FREE ACTION IS FREE MOTION metaphor (see Kövecses, 2002).

Cell phones can be seen as physically dangerous, as the example below suggests:

I did some research on the Internet and was shocked to learn that there are many doctors that believe using a **cell phone is like** putting a loaded gun to **...**
www.gunthergifts.com/cellphones.html - 26k - 3 júl. 2007 - Tárolt változat - Hasonló oldalak

The loaded gun metaphor stands for the electromagnetic radiation exposure that some scientists warn people against. The dangerousness of the cell phone also appears in another metaphor: the microwave. Both the loaded gun and the microwave metaphors focus on the physical danger that cell phones are purported to have.

Finally, the effect of cell phones on people can also be irritation. This effect is produced in people who are exposed to somebody else's use of a cell phone. Consider the following example:

**Cell phones are like** annoying kids in restaraunts. When you see them, you say to yourself, "My kids will never be like that." **...**
www.dooce.com/archives/daily_photo/02_12_2005.html - 62k - Tárolt változat - Hasonló oldalak

The example becomes clearer in the larger context from which it is taken:

> Cell phones are like annoying kids in restaraunts. When you see them, you say to yourself, "My kids will never be like that."
> But then you have kids and realize that they're just like that, or get a cell phone and find yourself calling someone because you just had to tell something you didn't get to five minutes ago when you were eating lunch together.

People who use cell phones annoy the people who are exposed to their conversations. However, the people so affected do not mind their own use of cell phones.

As we have seen in this section, the major reported effects of cell phone use are addiction, loss of freedom, dangerousness, and irritation. This last effect concerns the people who are exposed to somebody else's use of a cell phone.

# Use

The metaphorical map of the cell phone suggests that people regard cell phones as commodities that have a value, that function or do not function well, and that can be used appropriately and inappropriately. All of these aspects of cell phones can be subsumed under the general category of use. Commodities have a certain value, they function in certain ways, and they can be put to certain uses. I will analyze the metaphors in the data according to these categories.

## Value

As commodities, cell phones have a value. The most common comparison in this category is that of a car; people liken the value of cell phones to the value of cars. Cars vary considerably in their value, and so do cell phones. Some are luxury cars and some are standard versions. Cell phones also have their sports versions:

The nokia 5300 **cell phone is like** a sports version. The color combination has capability to target at the youth market. The chalk white, silver grey, **...**
www.wirelessunique.com/Nokia/Nokia-5300.html - 16k - Tárolt változat - Hasonló oldalak

Interestingly, the value distinction is also captured by means of metaphors that use people in their source domains: women and men as sexual partners, respectively:

**Cell phones are like** hookers, the thin ones cost more. Bowhunter57 **... Cell phones are like** hookers, the thin ones cost more. Bowhunter57 **...**
www.ohiosportsman.com/forum/showthread.php?p=200726 - 42k - 20 júl. 2007 - Tárolt változat - Hasonló oldalak

This was my first cell phone. What have I learned? **Cell phones are like** men. After the first one, you're more equipped to select better ones next time. ^_^ **...**
www.amazon.com/gp/cdp/member-reviews/A1IKYBTMNI3R5W?ie=UTF8&sort_by=MostRecentReview - 51k - Tárolt változat - Hasonló oldalak

The two metaphors probably indicate the value difference between two cell phones from the male and female point of view, respectively.

Given that the value of cell phones is commonly talked about by means of using the car metaphor, it is not surprising that people commonly talk about buying a cell phone using the same metaphor:

For these people, buying a **cell phone is like** buying a car. It's a huge investment." CONTINUED: Profiting from numbers... Page 1| 2 **...**
news.com.com/2100-1039_3-6159491.html - 52k - 3 júl. 2007 - Tárolt változat - Hasonló oldalak

The two processes are similar in two ways. First, for many people, both require a major investment, and, second, a variety of choices and decisions have to be made.

Just like with many other commodities, cell phones are acquiring a status that points beyond their use as an object of utility. One common metaphor that is used to indicate this is clothes:

These days, **cell phones are like** clothes. People don't treat them simply as an object that performs a task. People have begun using cell phones as an **...**
www.dailymantra.com/2006/11/dear_god_this_is_sprint.html - 33k - Tárolt változat - Hasonló oldalak

Clothes are often used to indicate who we are. Similarly, even the ringtone of a cell phone can be used to express a person's uniqueness, as the fuller quote shows:

> These days, cell phones are like clothes. People don't treat them simply as an object that performs a task. People have begun using cell phones as an expression of who they are. I suppose this isn't a bad thing, but, personally, any sort of ringtone that doesn't sound like a normal phone drives me crazy.

**Function and functioning**

Since cell phones are objects of utility, people expect them to perform certain functions. They judge them on the basis of how well the functions are performed:

To me, **cell phones are like** cars: if they do what they're supposed to do, who cares how blingy they are? Still, this one's got some nifty options, **...**
www.thelogbook.com/earl/category/gadgetology/ - 52k - Tárolt változat - Hasonló oldalak

A major function of cell phones is talking. A metaphor that showed up in the data involves a stereotype of women:

A **Cell Phone is like** a Woman: Talks non-stop, Costs a fortune, Disturbs you when you're busy and when you need them urgently they have no service. **...**
www.vxxxstuff.com/forums/showthread.php?t=937 - 69k - Tárolt változat - Hasonló oldalak

But just like women, cell phones can "malfunction." We can call this the "RELUCTANT LOVER" metaphor:

At these moments the **cell phone is like** nothing more than a reluctant lover; we have a problematic, codependent relationship; it refuses sex (charging) when **...**
jeremydenk.net/blog/2006/04/25/morning-wreckage/ - 31k - Tárolt változat - Hasonló oldalak

The correspondences between the source and the target domain are interesting. We get a hint from the author himself (in parentheses) concerning how to interpret the metaphor: sexual intercourse should be understood as charging. We can lay out the mappings as follows: the man trying to make love to a woman is the person trying to charge his/her cell phone; the love-making is the charging of the cell phone; and the woman who refuses to make love is the cell phone. It is the second mapping, or correspondence, that motivates the metaphorical analogy, in that penetration and ejaculation in sexual intercourse can be conceived as image-schematically similar to electricity "going into" and "filling up" the cell phone.

### Inappropriate use

As we just saw, cell phones have functions and they are expected to perform those functions well, but malfunctions can occur. Now when people use cell phones, similar to any other object of utility, they can use them appropriately or inappropriately. Appropriate use can mean two things: either the appropriate handling of the cell phone or the situationally appropriate use of it. It is the latter sense that is found frequently in the data.

Many people apply their expectations concerning the use of other devices to cell phones. They can do this literally or they can do it by relying on metaphorical analogies, such as the following:

**Cell phones are like** cigarettes were in the '50s. Everyone uses them everywhere all the time. The lady in the grocery store behind me yapping in Spanish. **...**
www.tucsoncitizen.com/ss/opinion/14989.php - 23k - Tárolt változat - Hasonló oldalak

This quote comments on the inappropriate use of cell phone; namely, that they are used all too often and without moderation, just like cigarettes were in the 1950s.

But the issue of the inappropriate use of cell phones is tied most closely to the use of cell phones while driving.

### Driving

The inappropriate use of cell phones while driving is commented on frequently. Here the main metaphorical source domain is that of drunken driving; that is, talking on a cell phone while driving is compared to driving under the influence of alcohol. An example that indicates this is the following:

visible and undeniably valid health concern about the use of cell phones is not a physiological effect--at least, not immediately. Driving and talking on a **cell phone is like** drinking and driving. In both cases, the driver's reaction time is slowed, especially in the event of a roadway mishap requiring urgent response. In addition

In other words, in such cases lack of sufficient attention to driving is conceptualized as lack of sufficient attention caused by drinking too much alcohol.

### Other dangers

The inappropriate use of cell phones can present other dangers to the user. In such cases, the cell phone is compared to devices that are typically thought of as the embodiment things that can threaten life: weapons. One of these is hand grenades:

**Cell phones are like** hand grenades: if you don't handle them properly, they can destroy you. An Internet friend describes the cell phone like this: "If I **...**
www.cefgroups.org/eng_txt/oc6807.htm - 9k - Tárolt változat - Hasonló oldalak

The fuller quote gives us a good list of these potential dangers:

> Fong Shia-kang's movie, "Cell Phone", not only presents us with the new "cell-phone-paradigm", but also with new dangers. This new paradigm concerns the close relationship between the cell phone and its owner: the two cannot be separated. Any text messages or cell phone numbers with the potential to create family conflicts have to be deleted. Cell phones are like hand grenades: if you don't handle them properly, they can destroy you. An Internet friend describes the cell phone like this: "If I forget to take my cell phone with me, I feel quite insecure. I am afraid that people might discover my secrets, and I am also afraid that people won't be able to reach me when they need to."

As the text suggests, the inappropriate use of cell phones can seriously damage human relationships. They can also lead to "anti-social" behavior. Some forms of such behavior are provided in one of the texts:

> Furthermore, cell phones actually lead to "anti-social" behavior, as users "retreat to their own cocoons," while parents who give their children cell phones in effect evade the responsibility of "interacting" with them in any meaningful way. Other writers report the occasional use of texting by students to cheat on exams, or the use of cell phones to spread rumors and gossip that may ruin someone's reputation. As one Filipino on-line writer put it, cell phones are like "loaded weapons" and its avid use needs to be tempered with some caution.

In light of such potential dangers to social life, it was inevitable for people to begin to think about ways of regulating the use of cell phones.

**Regulating the use of cell phones**

The issue of regulation comes up repeatedly in connection with schools. Should schools allow or ban cell phones? The participants of the debate can evoke the analogous case of how to deal with chewing gum in schools several decades ago. Participants in the debate can also use other concepts in the debate; concepts that people can use for both good and bad purposes, such as fire.

Still others remind us that it is not the device itself (the cell phone) that poses danger to people but the people who abuse the device. In this case, the gun metaphor is used. The implication of this view is that, according to one author, "[o]utlawing cell phones because creeps in our world abuse them makes little sense."

In this section, we have seen how a variety of metaphors address various use-related aspects of cell phones: the car metaphor is used to deal with the value and buying aspects of cell phones, the drunkenness metaphor addresses the issue of inappropriate use, and the weapons metaphor is employed to conceptualize the numerous social dangers that cell phones present to people.

## Conclusions

In this study I attempted to draw a metaphorical map of the concept of cell phone. In particular, I tried to identify some of the common metaphors that people use to address certain aspects of the concept. Four large dimensions of the conceptual category of cell phones were discovered that serve as target domains of certain metaphorical source domains: function, significance, effect, and use.

The *functions* of cell phones are mainly captured by the computer metaphor, together with some other devices and tools. The usefulness of the functions of cell phones is metaphorically viewed as a friend.

In the dimension of *significance*, cell phones are presented as inevitable ingredients of human existence. The lifeline, air, and food metaphors make the cell phone an absolutely necessary precondition for social life. The body part and appendage metaphors present cell phones in less absolutist terms, but they also suggest that people who want to fully function in their social worlds cannot live without them.

Cell phones can have certain *effects* on people. These are largely negative, as the metaphorical examples in the data indicate. The addiction metaphor reveals people's dependency on cell phones; the prison and leash metaphors suggest reduced freedom that the use of cell phones imposes; the loaded weapon and microwave metaphors indicate the danger they might involve; and the annoying children metaphor reveals cell phones as irritating.

The concept has an elaborate *use*-related dimension. To talk and reason about the value aspects of cell phones people use the car metaphor. Drunkenness as a source domain is used for comprehending the inappropriate uses of cell phones. And, again, the weapon metaphor serves to capture the socially dangerous character of cell phones.

In general, the concept of cell phone seems to be characterized by these four dimensions and the metaphors defining them—at least according to the data I have examined. A larger set of data may modify these results, although I believe that the major tendencies as regards both the dimensions and their metaphors would remain more or less the same. However, this is an empirical issue that may be further investigated in future research.

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# Young Adult's Use of Mobile Phones and Online Social Networking
## The Role of Friend

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**Abstract**

Young adults are the main users of a variety of communication media, especially mobile phones and online social networking. A great number of scholarly studies have managed to illuminate the importance of mobile phones and online social networking in various aspects of young people's lives. Nonetheless, there are only few studies dedicated to the investigation of the relationship between using these different communication media. This study aims to fill the gap. According to the survey of college students, it is found that those young adults who spend more time on the mobile phone tend to invest more time on online social networking. In addition, the proportion of their friends who use these two forms of communication technology is positively associated with their dependence on these media. Friend influence also comes into play as young people are adopting the fledging mobile social networking applications.

**Introduction**

Mobile phones and online social network both play a role in helping the younger generation formulate their social lives, whether in the offline world or online forum (Hempel & Lehman, December 12, 2005). The popularity of online social networking among the youth has been widely acknowledged. For example, Stutzman's survey (2006) revealed that almost 90% of the undergraduates in the United States have participated in at least a type of social networking site. Similarly, in the mobile world, a recent national survey by Pews shows that roughly seven to nine percent of the population are only using mobile phones, totally abandoning landline phones[1]. Particularly, 40% of landline users between the ages of 18 and 29 reported that they are more likely to use mobile phones only[2]. In the meantime, as a nascent mobile application, mobile social networking, from MySpace and Facebook to Dodgeball, SMS.ac, finds its place in the youth media arena by integrating online social networking features into the mobile phone. Nonetheless, few studies have been dedicated to investigating the relationship of young people's uses of mobile phones and online social networking. Therefore, the scarcity of academic studies, in conjunction with the emergence of the mobile social networking applications, motivates the investigation of this study. In the following section, a review of relevant studies is provided. Then, corresponding research questions and hypotheses are developed, followed by the details of how they are transformed into questionnaires for obtaining empirical data. After the results of the hypotheses testing, implications and suggestion for future studies are discussed.

**Literature Review**

The majority of the issues in the studies of online social networking revolve around its impact on the construction of teenager identity, new meaning of friendship, social capital and threats to privacy (Boyd & Jenkins, 2006; Boyd & Heer, 2006; Donath & Body, 2004; Ellison, Steinfield, & Lampe, 2006; Stutzman, 2006). Not surprisingly, similar topics are explored in the mobile phone research, including teenager identity (Green, 2002; Kasesniemi & Rautiainen, 2002; Ling & Yttri, 2002; Skog, 2002; Taylor & Harper, 2001), social capital (Rheingold, 2002) and negotiation of public and private spaces (Haddon, 2000; Katz, 2004; Plant, 2000). A common theme is that both of these two forms of communication technology serve as a tool for young adults to maintain relationships with their existing circle of friends (Boyd & Jenkins, 2006; Ishii, 2006; Smoreda & Thomas, 2001).

Yet, a large proportion of the studies discussed above investigated how young adults use either mobile phones or online social networking in their lives, with only a few academic efforts being made to examine how young adults use both of these two forms of communication technology. The exceptions are studies of Skog (2002) as well as Madell and Muncer (2005). Skog examines the relationship between teenagers' ownership of the mobile phone and their Internet and computer use. Skog found that mobile

phone owners are more likely than other teenagers to use digital technology and use the Internet for email and homework. Similarly, Madell and Muncer (2005) identify teenagers' complementary use of mobile phones and the Internet through the employment of the rational actor perspective. According to Madell and Muncer, this perspective adequately explains the positive correlations between teenagers' use of mobile phones and the Internet in that different technologies are meant to meet different communication needs. Expanding this rational actor claim to the realms of mobile phones and online social networking, the first research question is thus to find out whether there is a correlation between uses of these two communication media.

**RQ1**: Are there any similar usage patterns in the use of these two communication media?

**HP1a:** Those who spend more time using mobile phones, including text messaging, are likely to spent more time engaged in online social networking.

**HP1b:** Those who have broader use of mobile phones are likely to have more diverse activities in using online social networking.

Meanwhile, taking Fulk, Schmitz and Steinfield's (1990) social influence perspective, friend influence is a crucial part in understanding young adults' use of these two forms of communication technology. Incorporating various dimensions of factors, the social influence model suggests that certain situational factors, such as critical mass of users and accessibility of the medium areconsidered when deciding to use certain media. Campbell and Russo (2003) mention the role that social influence in personal communication networks plays in people's perception and use of mobile phones. Likewise, Ling and Helmerson (2000) suggest that the adoption of mobile phones entails the consideration of the influence of the adolescents' social network. In a similar vein, Jung, Kim, Lin and Cheong (2005) posit that adolescents' Internet connectedness is formulated by how many of their friends use it. In light of these studies pointing out the importance of friend influence in the use of communication media, the second research question, and corresponding hypotheses, are to uncover whether friend influence is the driving force behind young people's use of mobile phones and online social networking.

**RQ2:** How do friends play a role in influencing young people's usage of the mobile phone and online social networking?

**H2a**: Those who have more friends using the mobile phone are more likely to use it more intensively.

**H2b:** Those who have more friends using online social networking are more likely to use it more intensively.

**H2c:** Those who have more friends using the mobile phone are more likely to use it for more diverse activities.

**H2d:** Those who have more friends using online social networking are more likely to use it for more diverse activities.

**H2e:** Those who have more friends using the mobile phone are more likely to exhibit dependent attitudes toward mobile phones in their daily lives.

**H2f**: Those who have more friends using online social networking are more likely to exhibit dependent attitudes toward online social networking in their daily lives.

Rheingold (2002) suggests that mobile social networking, armed with anytime-and-anywhere features, has created a new form of social behavior (Ziv & Mulloth, 2006). With an exploratory purpose in mind, another goal sought by this study is to take pulse of the potential interest in mobile social networking. In light of this, the last research question is formulated as follows.

**RQ3**: What are the factors that influence young people's adoption and non-adoption of mobile social networking?

**Methods**

All respondents were recruited from two undergraduate classes enrolled in interpersonal communication and mediated communication. Students were rewarded by extra credits for this participation. In the demographic distribution, the total N was 152, with 62% female, 68% White and 78 % aged between 20 and 25.

**Measures**

*Friend Influence*

Borrowing from Jung et al.'s study (2005) of investigating how peer factor influences teenagers' Internet connectedness, the variable of friend influence was measured by asking respondents to rate their level of agreement with the following the statements, "Many people I communicate with use the mobile phone " and " Many people I communicate with use online social networking" on a 5-point Likert-type scale ranging from 1= *strongly disagree*, 3=neither agree nor disagree to 5 =*strongly agree*.

*Intensity of Use*

The amount of time spent on mobile phones and online social networking indicates the intensity of a person's intensity of using these two forms of communication technology. In particular, inspired by respondents' feedback on the pilot study, the intensity of mobile phone use included three aspects: voice call on weekday, voice call on weekend and the daily volume of text messages. Respondents were asked to reveal their use of mobile voice call on weekdays and weekend on a five-point scale ranging from 1= *less than 10 minutes* and 5= *more than 2 hours.* Respondents were also asked about the number of text messages they typically send from their mobile phone every day (less than 5 messages, 5-10 messages, 11-15 messages, 16-20 messages, more than 20 messages).

*Scope of Use*

Applying Jung, Qiu. and Kim's ( (2001) Internet connectedness index, the variable of scope of use was measured by asking respondents the type of activity they use on their mobile phone and online social networking. Six types of activities are provided in the questions and the respondents could articulate the scope of their use by selecting 1=*none of them*, 2=*only one of them*, 3=*two of them*, 4=*three of them* and 5=*most of them*.

*Dependence*

Ling and Yttri (2002) mentioned young users' dependence on mobile phones, through which they would keep up to date about current events among the social groups. Referencing the measurements of dependence used by Ellison et al. (2006), Jung et al. (2001) and Jung et al. (2005), coupled with Ling and Yttri's observation, a set of three items measuring the construct of dependence are "I feel out of touch when my mobile phone is not within my reach," "The use of mobile phones has become part of my daily activity," and "I would miss the mobile phone if one day I find it had vanished." Respondents were asked to indicate their level of agreement with these statement on a five-point Likert-type scale ranging from 1= *strongly disagree* and 5 =*strongly agree*. Because the Cronbach Alpha for the scale of mobile phones was not high ($\alpha$=.561), a series of correlation tests with each of the three items measuring the dependence on mobile phones were carried out separately. On the other hand, three similar items were designed to measure the respondents' dependence on online social networking, but replacing mobile phones with online social networking in phrasing the questions. The three items were tested for reliability and aggregated into an index called Dependence of Online Social Networking, averaging across the items ($\alpha$=.905).

**Results**

Employing Pearson's *r* correlation, significant correlations were found between the use of mobile phones and online social networking. Hypothesis 1a was supported (r=.186, p<.05), indicating that those people spent more time on their mobile phones during the weekend would spend more time on their use of online social networking. Interestingly, a positive correlation was observed (r=.256, p<.05), indicating that the volume of text messages was in proportion to the time respondents spent on online social networking. Then, as for Hypothesis 1b, a positive correlation that was significant was found (r=.248, p<.01), indicating that the scope of respondents' use of mobile phones was positively correlated with the diversity of their activities on online social networking sites.

A series of Pearson correlation tests were conducted on Hypotheses 2 (a-f). Hypothesis 2a was

rejected in that the proportion of friends who use mobile phones was not significantly related to the time respondents spent on mobile communication. Hypothesis 2c was also rejected in that the proportion of friends who use mobile phones was not significantly related to the scope of respondents' use of mobile phones. Nonetheless, Hypothesis 2b and 2d were supported in that the proportion of friends who use online social networking was significantly correlated with the amount of time respondents spent on it ($r=.380$, $p<01$) and with the scope of activities respondents used on online social networking ($r=.566$, $p<.01$). Hypothesis 2e was supported, showing that friend influence affected respondents' perception of the critical part of mobile phones in their daily lives ($r=.240$, $p<.01$). In terms of the dependence on online social networking, a significant correlation was found between the dependence of online social networking and friend influence ($r=.500$, $p<.01$). Thus, Hypothesis 2f was supported.

As for the usage of mobile social networking, 49 respondents (26.9%) reported using this communication medium and their activities are of diverse nature, with those using single activity accounting for 17.8% , two activities 20%, three activities 22.2% and five and more activities occupying 37.8%. In terms of reasons for respondents' non-adoption of mobile social networking, it was found that among the 104 (68.4%) non-mobile social networking users, "no need to be connected at all times" was articulated by respondents as the main reason for not using mobile social networking and the technical limitation of small screen size was the least cited one (see Table 1).

**Table 1 : List of reasons for non-adoption of mobile social networking**

| | No need to be connected at all times | Cost | Not many friends are using | Never heard of that | Small screen size |
|---|---|---|---|---|---|
| N | 64 | 28 | 18 | 15 | 10 |
| % | 61.5 | 26.9 | 17.3 | 14.4 | 9.6 |

Note: The total number of those who reported not using mobile social networking is 104.

**Discussion**

According to the results, the first hypotheses were supported, which means that the pattern of mobile phone use and online social networking is closely related, in terms of the frequency of use and diversity of activities. In particular, the volume of text messages that respondents sent each day is also in proportion to the time they invested in online social networking every day. This result corresponds to the rational actor approach proposed by Joinson (2003) in the discussion of the use of communication technology (Madell & Muncer, 2005). He suggests that people would use different features enabled in different forms of communication technology to meet their various communication needs.

As for the second set of hypotheses, although friend influence was found to play a role in the amount of time respondents spent on online social networking, the test on the effect of friend influence on the intensity of respondent's use of mobile phones failed to show positive results. Two reasons are sought for the discouraging result. First, constrained by the minutes allowance of mobile calling plans, young adults might use their airtime minutes frugally. Pew's national survey found that 47% of young mobile phone users between the ages of 18 and 29 feel shocked at the large amount of their monthly phone bills (Rainie & Keeter, 2006). In light of this budget reason, young adults might reserve their airtime minutes for important correspondence, rather than casual communication with friends. Meanwhile, compared with limited mobile phone minutes during the weekdays, young adults are burdened with no incremental cost to get access to online social networking sites and connect with their friends. Cummings, Lee and Kraut (2006) pointed out, unlike the phone, which costs more when talking longer to someone farther away, the pricing scheme for computer-mediated communication has less to do with the distance that a message must travel. Hence, due to the economic decisions, email and Instant Messaging appear to be the telecommunication technologies that are especially useful for maintaining friendships among young adults when they experience the change in life events, such as moving from high school to college. Secondly, friend influence is not necessarily reflected in the longer conversation on the phone. Licoppe

(2004) describes that the multiplication of short calls represents individuals' needs to construct their continuous presence and reaffirm their link with social networks. In his view, short calls might carry more important meaning among friends.

Similarly, friends have no significant influence on the scope of use of mobile phones by respondents. The results show that while friend influence plays a role in the type of activities that respondents used on online social networking, friend influence does not exert the same effect on their use of mobile phones. Two reasons are conceived for the results. First, the descriptive analysis of the responses shows that, other than voice and text messaging, most of the mobile uses are concentrated in one to two activities (m=2.83, *sd*=.964) where 1=*none of them*, 2=*only one of them*, 3=*two of them*, 4=*three of them* and 5=*most of them*. It appears that the uptake of an array of mobile applications is not yet widespread in the United States. This parallels Metrics's survey on mobile social networking use in 2007[3], which shows that, aside from text messaging and photo messaging, other mobile applications are used on a relatively sporadic basis. Furthermore, in line with the economic reasons which contributed to the distinction between the use of mobile phones and online social networking in terms of intensity, young users need to spend extra fees for their use of mobile applications. Taken together, these reasons explain why the friend influence fails to show a significant effect on respondent's scope of mobile phone use.

In contrast, the results indicate that friend influence is central in shaping young adults' attitudes toward the importance of using mobile phones and online social networking in their lives. Interestingly, the factor of friends was also found to exert its influence on young people's adoption of mobile social networking. Among the 49 respondents who reported to have used mobile social networking, 31 indicated that most of their friends use mobile social networking whereas no one reported that none of their friends use it. Nonetheless, it is important to note that respondents' evaluations of their dependence on mobile phones are different from their perception of their reliance on online social networking. The reason of this discrepancy is that the measurements employed in this study primarily reference the scales used in the studies on the Internet (Ellison et al., 2006; Jung et al., 2001; Jung et al., 2005). Hence, this fortuitous discovery is worth exploring in a future study by developing a different set of items measuring the use of mobile phones and online social networking separately.

**Conclusions**

This study represents an exploratory effort into investigating how young adults use different forms of communication technologies, especially mobile phones and online social networking. Supported by the survey results, those young adults actively using mobile phones are more likely to be actively involved in social networking sites. Furthermore, friend influence was found to play a key role in respondents' use of these media as well. The findings show that young people tend to use online social networking more intensively, diversely and dependently under the condition of the number of friends using it. In addition, a tentative effort was also made into finding the adoption of emerging mobile social networking. The results reveal that approximately a quarter of respondents (26.9%) reported to have used this communication medium.

In terms of the limitation, improvements will need to be made in inflating the sample size as well as selecting the sample on a more geographically distributed basis. The respondents were mainly from the same class as well as in the same age bracket and thus might have the tendency to display similar attitudes toward the utilization of the two communication modalities. Further, the measurement of the intensity, scope of use, and friend influence relied on single measures which might not adequately capture the full spectrum of the variables which are of interest. A better way is to design a set of items and create an index by measuring reliability among the item.

**Notes**

1. Pew's report of cell-only users, available at http://people- press.org/reports/display.php3?PageID=1070
2. Pew's national survey of mobile phone use in the United States, available at http://www.pewinternet.org/pdfs/PIP_Cell_phone_study.pdf
3. M:Metric's 2007 April Benchmark Survey incorporated the monthly consumption of mobile content in

France, Italy, Germany, Spain,Britain and the United States. American data were based on three-month moving average for period ending 30 April, 2007, n= 33,810. Available at http://www.mmetrics.com/press/PressRelease.aspx?article=20070615-iphone

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# Mobile culture and subjectivities: Mobile phone trans-personalisation in young couples

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## Introduction

The term 'Mobile Culture' refers here to the culture of mobile phone (a shared set of practices, meanings, relationships, norms, exchanges and rituals, e.g. Goggin, 2006); and to the growing importance of mobility and flows, in their different modalities, in contemporary societies (Urry, 2000). Besides being portable artefacts, carried by their owners in the move, mobiles also contribute to mobilise and animate bodies, affects and sensations, and to create occasions for contacts, exchanges or monitoring. Different types and scale of mobilities are related to mobile phones regarding people, devices and services accessible from different places.

Convergence as a social and technological phenomenon is in itself a form of mobility: a flow of content across multiple media platforms; migratory behaviour of media audiences; and also lives, desires, memories, relationships and fantasies travelling across different media channels (Jenkins, 2006). Convergence culture is part of the contemporary mobile culture and mobile telephony is a key element in the development of both. However, contemporary social, economic, politic and technological dynamics increasing convergence and mobility do not imply the absence of other logics and resistances, such as technological divergence, conflicts between industry and users, and between companies, or legal issues tending to regulate and limit the flow of contents. Furthermore, differences of class and nationality related to the possibilities and meanings of mobility should be taken into account, as well as all the contemporary practices and political decisions to control, regulate and prevent the mobility of people, goods and ideas, creating significant forms of immobility in order to securitize modern societies (Turner, 2007).

The theoretical sensibility of this paper connects to another kind of mobility, a 'mobile epistemology', in the realm of social theory, which acknowledges the fluidity and mobility of social realities, asking for a sociology beyond societies (Urry, 2000), the recognition that group formations are not "buildings that need to be restored" but "movements that need continuation" (Latour, 2005), that social ties are fluid, translations, a movement, a displacement, that need to be followed, traced, accounted for. The possibility of these movements to be tracked and of this fluidity to be continued is largely ensured by the materiality of objects, bodies and artefacts. Mobile phones and their inscription power (Ferraris, 2005) are an example of this.

Drawing on qualitative and ethnographic research on mobile phone uses in Spain[1], this paper follows a thread involving mobility, convergence and the role of artefacts in the formation, redefinition and maintaining of subjectivities, in order to better understand how mobile phones are taking part in these subjectivation processes nowadays. Bearing in mind that beyond economic, geographic, gender and other differences in personal mobility (geographical, social), there is a radical or essential kind of movement and mobility linked to life and being, to the same notion of identity that cannot be other than an unachievable process. A brief description of trans-personalisation and des-differentiation related to mobile phone use in young couples´ relationships will provide an example of how the shared agency between individuals and objects takes place, playing a main role in power relationships and control strategies. Thus, this analysis is situated within contemporary theoretical approaches that challenge the traditional views on the status of objects and subjects, such as Actor-Network Theory, the concepts of Cyborg

[1] Proyecto Complutense 2006 "La mediación de subjetividades e identidades sociales a través de la telefonía móvil, with my colleagues from the University Complutense of Madrid, Angel Gordo and Lucila Finkel; and previous research in the Vodafone Surrey Scholar Project at the DWRC, University of Surrey (Lasen, 2005).

(Haraway), Post-human entities (Hayles) and Post-Humanism. A recent contribution by Giorgio Agamben, where he revisits Foucault's concept of '*dispositif*' and considers mobile telephony as an insidious example of the particularities of present *dispositifs* (Agamben, 2007) is discussed below.

Much thinking involved in the making of this paper has been triggered by the suggestive and enigmatic concept of 'Dyonisian Materialism' coined by Peter Sloterdijk (1989). This notion calls for the recognition of the physicality of thought, for the consideration of body and drama as the basis of consciousness and subjectivities. The body considered as the ability to be affected by the external world and the learning to and from it. This notion of materialism, as an ecstatic and Dionysian learning, can be explored through the study of associations between people and technology, for instance through the affects and emotions involved, and through the shared agency or the mutual configuration between body and device materialities. This notion, from Sloterdijk's reading of Nietzsche, goes far beyond these issues, therefore offering the possibility of new articulations, views, perspectives, and also problems and questionings for the study of the personal, social, political and cultural implications of ICT uses and presence in our lives.

**Mobile phones as contemporary *dispositifs***

Subjectivation processes entail specific material and bodily relationships, giving rise to negotiations and power relations where individuals, groups and institutions are involved. Subjects and power relations are effects generated by a network of heterogeneous materials in interaction. ICT are part of this network and contemporary subjectivities are being shaped, in different ways and with different implications, by TV and radio reception, mobile use, blogging, chats, and email. All these activities involve the creation, diffusion and reception of sounds, images and texts. Alienation, masquerade, separation, multiplication of mediations and assemblies, multiple body-to-body encounters with different artefacts and their constraints, leaving aside the different value judgements about these situations, related to the increasing presence and use of ICT, all of them speak of a decentred subject. As it has already been made clear by thinkers such as Latour, Sloterdijk, Haraway or Hayles, among others, it is not that ICT are creating a new situation, but rather that they are making more evident the existence of these mediations and the work of producing subjects and subjectivities. Therefore, it becomes more difficult to maintain the modern illusion of the autonomous and consistent subject, in control of being able of enter un-mediate relationships with others and with his environment.

Giorgio Agamben revisits this foucauldian concept in a short text entitled '*What is a dispositif?*' and considers mobile phones as an example of contemporary dispositif. This French word can be translated as socio-technical system, device, mechanism and plan of action. Foucault's notion includes all these meanings. Agamben defines it as a collection of practices, knowledge, skills, measures and institutions whose aim is to manage, govern, control and orientate in a useful way people's behaviours, gestures and thoughts. He broadens the scope of this notion to anything able to seize, orientate, determine, intercept, shape, control and assure the gestures, behaviours, opinions and discourses of living beings. Accordingly, mobile phones and computers join schools, factories, prisons, disciplines, but also writing, navigation and literature, in the large category of dispositifs. Agamben divides entities into two classes: living beings and dispositifs and, as a third part, the subjects: the effects of the interactions *corps à corps*, body to body, between the other two. In Agamben's view, shared agency is also a clash, the assembly or association being also infighting. This agonistic materialism can help to a better understanding of the shared agency between people and artefacts. However, the finalism of his argument and the unidirectional character of the relation between people and dispositifs undermine the value of such battle, as well as the ethnographic study and research about the details of the formation, evolution and working of such mechanisms.

Dispositifs have always existed since the birth of *homo sapiens* and they have played a crucial role in their becoming human, as Agamben states. The particularity of present times is the gigantic proliferation and accumulation of such mechanisms, in parallel to the everlasting production of new artefacts required by late capitalism, which trigger a continued and also infinite development of subjectivation processes, highlighting the theatrical, dramatic aspect of any personal identity. Their omnipresence, at least in developed societies, entails that any moment of individuals' everyday life is mediated by one or more of them. In this sense, the pervasiveness and ubiquity of mobile phone make its seizure of individuals more intense than that of other artefacts, as it is revealed in the attachment to the device. The mobile is "embodied in us", always on, always open. The emergent entity 'me and my mobile' augment the subject's opening and accessibility to the world, to their significant others, and therefore increases the need to manage this accessibility. People's presence is also mediated by the device (Lasen, 2005): in urban places, in friends´ and loved ones' minds and hearts, in the places where their contacts are, in all the phone books where their numbers are, and in all the places where those mobiles are. These characteristics of mobiles increase the decentring and heteronomy of individuals.

Agamben considers these technological mediations as control, shaping and contamination, entailing an increasing separation between individuals and their environment, and also among them, making personal relationships more abstract. This alienation is one of the effects of the growing presence and use of mobile phones, according to the Italian philosopher, and one of the reasons for his admitted hatred of the device. These separation and abstraction could be also referred to, with different undertones, as the deployment of multiple mediations. It is not clear in his argument if this abstraction is related to the mediation of artefacts and therefore its opposite, more concrete relationships would point to a kind of unmediated communication. Agamben claims that mobile phones are contributing to the growing abstraction in personal relationships and that modern dispositifs only entail de-subjectivation processes without contributing to generate new subjectivities. This and the use of terms like 'seizure' and 'contamination' let to think that this fiction of a substantive, pure, un-mediated and un-attached subject involved in forms of relation and communication without artefact's mediation, underlies his argument.

**Moving through Nietzschean landscapes**

Sloterdijk observes how contemporary Nietzsche's questioning about identity is, regarding the drama of individuation; the "battlefield" or "hells" of difference and identity; the concurrent trends towards isolation and consolidation or fusion; and the impossible simultaneity of identity and reflexivity. Mobile phones take part in this battle, i.e. in the constitution and transformation of subjects considered as changing and heterogeneous material and informational entities. They are part of embodiment and subjectivation processes. This assembly is linked to other entities (e.g couple, family), according to different situations and affiliations. The development of convergence multiplies the occasions where different kinds of artefacts and individuals gather together with the entity 'me and my mobile'.

The usual definition of convergence regarding mobile phones refers to their different applications such as voice, text, data, images and music and the possibilities to produce, receive and convey content from and to other media (TV, radio, Internet). But mobiles reveal another modality of convergence susceptible of eliciting conflicts and dissonances. A flow of different interactions and social functions are embodied in the device, such as connectivity, coordination, everyday organisation, control and monitoring, entertaining, affective communication, emotion management, accessibility, heteronomy and autonomy… All these aspects are made visible, physical, through their inscription in the device as sounds, images, numbers and texts.

The two interlinked modes of convergence take part in processes of individuation, self-representation and recognition. These are the main aspects of the constitution of subjectivities

that are also performed by the entity 'me and my mobile'. These performances are caught up in the dynamics of difference and identity, isolation and consolidation. The personalisation of the device is one of the aspects performed, as the mutual stylisation produced between the object and its owner. This personalisation is an effect of the reciprocal relationships of bodies, data and performances involving people and artefacts. It entails the realisation and storage of diverse inscriptions: SMS, voice messages, pictures, films, numbers, dates, call register, registered sounds, melodies, ring tones, songs… For instance, the register of significant moments of a couple's relationship is kept on the mobile: the wedding picture on the mobile screen, the date of the first date as PIN, old SMS with love content or related to events such as the acquisition of a flat. The lasting of these traces, more or less ephemeral, depends largely on the memory size of the device and also on the periodic decision taken about what deserves to be kept.

Mobile phone personalisation as a way of individuation, self-representation and recognition not only concerns individuals but also other entities, such as couples. Mobiles contribute to the individuation of the couple entailing a growing des-differentiation of its members, and to the self-representation of the couple and its recognition by other people and the partners too. For instance, the evolution of the relationship can be read in the modalities of their mobile phone contract: favourite numbers, portability to share the same operator and, finally, a family contract[2]. In our study it was found that young adults allow their spouses, boyfriends or girlfriends total accessibility to their mobiles. They know the other's mobile PIN, answer and make calls with the other's mobile, give the partner's number to be called, download content (music, pictures) to the other's device, read and even delete SMS and numbers (cleanup as they say). This accessibility seems to have become one of the expectations and obligations of being in a couple. Mobiles embody significant others' virtual presence thanks to the possibility of permanent contact. In this case, their presence is reinforced through the inscriptions they have made in their partners' devices. It is not only the usual traces of other people in our mobiles (numbers and SMS stored, call register, pictures and videos we have made) but the personalisation of other person's device, that could be called 'trans-personalisation': making inscriptions in the girlfriend or husband's mobile (images, pictures, sounds) and taking decisions about what deserves to be kept or deleted (SMS, numbers) in the other's device.

As a result of this trans-personalisation and shared use of the mobile phone, characteristic of young couples, the mobile is not perceived as a personal object. By letting these inscriptions or by erasing other people's ones, they remind theirs partners that the device and its management also belong to them, that the realm of relationships and exchanges mediated by the mobile is also their business and do not escape their influence. Therefore, this trans-personalisation reveals a des-differentiation process inside the couple, stressed by the obligation of double accessibility afforded by mobile phones: to the person through the mobile, and to the device itself and its content. These obligations reveal the lack of privacy inside the couple, which does not seem to be a matter of concern for them. This lack of concern for privacy is characteristic of other young people´s practices related to media and Internet.

In spite of being a 'personal technology', mobiles do not increase personal autonomy and individualisation when used according to the norms and expectations born inside the couple, whose aim is to consolidate the new entity and ward off the risks of a double life, betrayal and unfaithfulness. A notion of trust arises demanding complete transparency. Anything unknown or inaccessible becomes synonym of hidden and threatening, as it is revealed by the young adults interviewed, who do not understand the objection to total accessibility to the device, unless something must be hidden. The potential for mobile phones to support and reinforce the individual realm of activities, in this case the differences between the members of the couple, and to manage and extend the mobility of affects and affiliations, is fight and downsized, whilst

[2] "Contract couples" are recognised as a family unit by their phone bill before being united by their mortgage or by the register office .

its capacities as an inscription and monitoring machine are developed. Both aspects entail learning, conflict and collaboration with the affordances of the device and also with the mobile operator's conditions. Trans-personalisation is also the result of negotiations, conflicts and collaborations between the members of the couple. This is only the small example, briefly described, of one of the multiple aspects of how mobiles are taking part in what is to be in couple nowadays, rendering relationships more complex and open to more participants, but not necessarily more abstract, whatever that might be.

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**Christian Licoppe**

***Co-proximity events:***
***weaving mobility and technology into social encounters***

A recording of mobile conversations has yielded some scattered examples of conversations in which callers' first topic involves noticing, telling or enquiring about their own location and/or that of others. A particular class of such conversations which blend mobility, technology and sociality into a particular form of social engagement, are those in which the caller frames the way she mentions her location into an assertion about her proximity to the caller's current location, or the caller's likely current location, or to landmarks that are meaningful to both participants and relevant to the ongoing situations. Such talk simultaneously contructs co-proximity as a noticeable fact (on the cognitive side), and an event to be noticed and mentioned (on the normative side). 'co-proximity events' are conversational accomplishments.

We will discuss a particular example in which a woman calls one of her friend and leaves a message on her friend's home voicemail informing her that she is close by, and that she has called to check in case the friend was home and potentially available. This show some of the key features of 'co-proximity' events as interactional resources:

- Mobility and shared relational histories may be thus be turned into occasions for mediated or face to face interaction, or, failing those, a form of asynchronous 'interaction' that is relevant to the experience of 'absent presence'

- 'Co-proximity' events occur between close participants because they require some biographically constituted relational common ground, and also because they involve 'ritual constraints' in Goffman'sense. Their legitimacy depend on the closeness of social relationships, and the less close the participants, the more remedial work is required to legitimize the conversational accomplishment of a co-proximity events (thus producing and reproducing the particular character of a given social bond, i.e. social cohesion).

- Because they are constructed as events, 'co-proximity' events shape the cause of the call in the noticing of some external feature highly relevant to both participants. As such, they are connected to the notion of 'connected presence'

While similar situations may occur without mobile phones, one can argue that the availability of mobile phones facilitates the production of 'co-proximity events'. In that way, mobile technologies are embedded in

the taken for granted 'infrastructures of encounterability' that govern the emergence of occasions for social interactions in everyday life. We will eventually show how the design of mobile technologies may radically alter the 'infrastructures of encounterability' and shape 'co-proximity events'. In a location aware community of mobile gamers in which location is made public, co-proximity events come under many shapes, and some of them rather unusual for they are the consequence of a playful design of location awareness-supported 'co-proximity events' by the users themselves. One may expect 'co-proximity events' to become an ever more important interactional resource with the development of futuristic mobile communication technologies.

**Ann Light**

**Whose convergence? When technology meets experience**

Abstract:
Convergence is most often understood in a technical sense, as different strands of the Information Society come together. But to focus upon this is to draw attention away from the factors that encourage the design of good networked tools. This paper takes an experiential view of how people engage with the things around them and, presenting a case study of an MP3player/phone, offers a different idea of convergence, which prioritises the humans at the centre of the system and the activity spaces they move through.

***Introduction***

Technological convergence is a necessary but far from all-encompassing precondition for the design of good networked tools. Considerable attention has been devoted to the phenomenon, yet it is possible to argue that convergence, understood in this sense, is one of the least interesting aspects of recent developments. If instead we consider how people use things and, more importantly, why they choose to use things in some contexts and not others, we get a fuller idea of how technologies can serve us. If we go further and explore how people experience the tools they adopt, then we can begin to talk about the subtleties that add meaning to these encounters. This paper examines the role of context in the use of technology and situates convergence firmly in the realms of experience, attempting to see what can be learnt by resisting techno-centricity.

***Background***

In 1997, the European Union concluded that the convergence of the telecommunications, media and information technology sectors was not just about technology. Instead, convergence was a debate about the impact of technology and a 'quantum leap towards a mature Information Society' (1997). At the time, Brussels felt it necessary to wade into the discussion surrounding the term 'convergence' because its meaning was far from transparent and yet it was one of the buzzwords accompanying the drive towards the wireless, networked, Web 2.0 world we are starting to see now.

Since then, the idea of telecoms convergence has remained significant to a small group of powerful people. For business analysts and company strategists the notion of convergence informs alliances and mergers, diversification and focus. Ultimately, it affects the money that is available, for what and whom. Thus the rhetoric of convergence is important: the concept shapes the manufacturers of what we consume. It may not alone serve to predict future trends, but the effect of believing it can is substantial enough to have impact upon what is produced.

In a more practical incarnation, telecoms convergence can be identified with the standardisation and interoperability of devices and the transferability of content. This has engineering value: systems that cannot communicate effectively are inelegant, while such fracturing adds to the overhead of setting up, maintaining and exploiting a network. Indeed, the whole idea of digital networks is to some extent predicated on convergence.

But it is possible to argue that the convergence of the Information Society is a trivial form of convergence. What happens if we look at convergence from the perspective of the users (and, increasingly, the end-designers) of systems? Might different conceptions drive different kinds of innovation?

### *A trivial convergence?*

Much excitement has been expended on things coming together. The increasing fuzziness between Web, movies and television; the blurring between mobile phones and landlines: in each case, telecommunications is at the heart of a convergence and inseparable from it. Telecoms is in an unprecedented position as a carrier as an increasingly broad range of other media travel across time and space on a phone line. But, as McLuhan argues (1964), the only medium that doesn't carry another medium as content is light. Telephones have been carrying other media since they first appeared, in the shape of sound and, by extension, language.

Now telecoms carries further media: text, images, and audio-visual content. It links people and people, people and objects and objects and objects. In the future, some form of transmission system will carry a greater number of these messages if we are to believe in the potential of pervasive computing. Obviously, this growth poses new challenges, but these are not necessarily visible if we look at them using the rhetoric of convergence. If, instead, we accept the theoretical position that convergence is an obvious part of being a medium, what remains?

The question becomes more explicit as we struggle to talk of these new telecoms materials. We identify some moving images as television, others as film or music video. In each case we are using a medium of transmission or storage to identify the data type. Digital content preparation allows a move away from the incompatibilities of the old media to create indistinguishable files. Thus, the actual content carried may be identical whether it is classified film, television or video. And so we are left with reference points and descriptors that relate only to the cultural embeddings of these media.

People using the goods and services of the Information Society apply their particular understanding of what individual technologies are for and where they are to be encountered. They orientate towards their potential to integrate into their lives, rather than think in terms of convergence. They move their music from CD to iPod to computer and back according to how they intend to listen to it. When they take up new forms of activity, such as Twittering (www.twitter.com)[1] or posting photos to Flickr (www.flickr.com)[2], they do so because it supports their sense of connectedness in a fast-paced environment with a networked computer at the heart and a mobile phone in the hand. Not just because they can.

Sensitivity to cultural context is most visible in the design and use of media with a long history. A television programme is designed to be viewed at home (and ideally in a living room), largely for pleasure, on a set with a remote control and a replay function (Johnson 2005), for a duration that accepts the variety of alternative activities available, at a size where facial expressions are discernible but not ridiculous (though high definition is now making it possible to discern the pores too). Constraints are different for a movie, as are the aesthetics (Ellis 1982). Go to the other end of the scale and we don't yet have a satisfactory genre for what has become known as mobile TV, though short small audio-visual programmes for mobile phones are not unknown.

Is watching telly the same as viewing identical material on a large flat high-resolution PC screen? What if the PC is customarily associated with work and educational uses, is set up in a backroom or study, is placed for close view and keyboard entry? Each aspect affects the experience of

[1] A website that displays one-line descriptions from members which you can choose to see as you are using the Web: "A global community of friends and strangers answering one simple question: What are you doing? Answer on your phone, IM, or right here on the web!"

[2] A website that allows you to post, share, comment upon and otherwise group photos: "Flickr helps you organize that huge mass of photos you have and offers a way for you and your friends and family to tell stories about them."

engaging. These cultural distinctions are slowly giving way as people exploit similarities by displaying content designed for one system on another. This trend is supported by the slow steady marketing of home entertainment networks. However, it is an uphill battle both selling these networks and making them work. Even the manufacturers have conceded that consumers require education if they are to see the need for them (Negre 2003). And setting them up is a practical barrier to their use (Shehan and Edwards 2007).

Thus, understanding the difference in the cultural embedding of different tools is quite as important as understanding the possibility for shifting material between them. Convergence of standards and technologies is merely a small part of the story.

***Experiencing convergence***

The importance of context can be shown more conclusively by giving an example. Since this paper is a discussion of how one might think innovatively about convergence, the following extract of an interview is presented unapologetically out of context: the reader is referred to Light (2007a, 2007b) for the details of how the study was conducted.

The example in Box 1 is drawn from a study where people were asked to speak in detail about their experience of mobile and landline phones. CG is using a phone/MP3player as he walks to the station to go to work. Wearing a headset, he is exploiting a form of convergence as he receives both music and calls through the same channel. How does he experience it?

> The reason I remember quite clearly is that it has quite an abrupt ring and it's quite loud. … And it's a really nice part of the canal walk, and I'm listening to music, walking along and suddenly this really loud ring. … Generally I wouldn't think of it as intrusive, but on this occasion very loud, very obnoxious, jarring.
>
> I do the walk every day so I have a routine, I know exactly where I am going, counting the steps while listening to the music. If I listen to the same album for periods at a time, I'd know when certain things would be happening in the song.
> … that stretch of river is where I would be thinking about my day, what happened the day before and if there was anything I was supposed to do. Once I turn the corner from the river, the whole pace changes. …
>
> *So how was it doing the walk and taking the call*?
>
> A lot quicker. Not really conscious of everything going on around me, I mean conscious of it but not taking it in or aware of things.

Box One: CG's walk along the canal as he receives a mobile phone call

The call is 'loud, very obnoxious, jarring'. Receiving it, CG gives us to understand that he can no longer absorb himself in his walk or with his music; the ringing has been 'intrusive'.

Much of his account is taken up with describing what has been interrupted. We can see how the music has become part of being by the canal: 'I'd know when certain things would be happening in the song'. He also describes projecting towards the day before and the day to come as he moves, so that he is not only engaged in the canal walk but also a range of other activities, or

activity spaces (Light 2007b). When the call starts, it interrupts his planning, as well as distracting him from what he is walking past.

Thus, we can argue that many activity spaces have converged here, but those involving the phone are marked by lack of integration. Till the call, he is counting, planning, remembering and listening; he can talk of them with one breath. But the nature of interacting with the phone is markedly different from all the aspects of his life that have merged to the point of the call. Both the transition to the call (the ring) and the engagement in the call speak of a texturally different kind of experience from that which the use of the music device inspired – the introduction of new dominant activity spaces. Once on the phone, he allows his projection towards the caller to take over his experience while other thoughts and his surroundings disappear. By contrast, the music is described as a soundtrack to his walk and the things he is thinking about.

This suggests that there is no true convergence between the device's functions: the music does not give way seamlessly to the phone. And there is no convergence in the experience of using them – each has its own way of relating to the activities that the user is engaged in. Only the vehicle of carriage is the same, a matter of convenience for the user who does not have to shift or swap devices to change from one kind of aural event to another.

***Reappropriating convergence***

McCarthy and Wright define lived experience as:

> prosaic, open and unfinalisable, situated in the creativity of action and the dialogicality of meaning making, engaged in the potential of each moment at the same time as being responsive to the personal stories of self and others. (2004, p184)

So, experience can be regarded as a constant integration of everything absorbed from the immediate local environment and all that has been brought to bear by the person doing that absorbing in that particular moment. The example in Box 1 illustrates a simple point: that the function and mechanism of a technology are quite as much context for experience as those aspects usually seen as contextual, such as where the tool or system is encountered and how it has been described in its marketing.

If we take this experience-centred approach, how might this reframe convergence? Are standardisation and interoperationality necessary for a sense of convergence in experiential terms? Probably not. In addition to the importance of understanding the technical in the context of the cultural (identified in the first section above), we can see that the interesting convergences happen where the technology supports the meeting of the immediate surroundings and the many different mediated spaces now available through digital and networked media that supply the raw material for the activity spaces of experience. It is this convergence that has most significance for the person encountering the technology, beyond those of the 'real' and the 'virtual', the 'digital' and the 'analogue', the 'technological' and the 'social'; none of which have much meaning in the world as experienced, before analysis kicks in.

In the example cited above, the one element that isn't supporting experiential convergence is the design of the technology that is at the heart of the so-called trend, telecommunications. The phone call is disruptive and distracting. In another context, such as a car, this distraction might even be a danger (Strayer and Johnston 2001).

***Conclusion***

In presenting this example as a contrast to other ways of thinking about convergence, this paper seeks to challenge the prevailing focus upon technologies. Clearly, the capacity to connect technologies together enables new developments and drives innovation. That is not in question. But the clumsiness of many systems comes from a focus on function and usability without taking on the social issues of design. This paper has not addressed the many other concerns that might impact upon design decisions such as privacy, security, identity definition, or self-expression. Instead, this paper has drawn attention to the possibilities that the networks bring with them, of connecting up new and challenging aspects of life, and offered a rhetoric of convergence drawn from how people experience the things they use.

So, yes, people can see the point of getting their emails and their SMS texts in the same mailbox and being able to answer them without differentiating as to how they will be transported. But there will be times when texts, because of their immediacy, should not fall into a pot of waiting email. And as mass media is provided 'on demand', we need to recognise the difference between people wanting a recipe to cook from and wanting to watch a film, even if the technical solution is similar. In the end, meaningful design in the Information Society is not so much about exploiting convergence of technologies, or about their impact, as about understanding the subtleties of how and why people engage in the things they do.

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Martin Lindner

# Understanding Micromedia Convergence: On Points of Presence, Semantic Clouds and Hybrid Media Spaces

*"A process called 'convergence of modes' [of delivery] is blurring the lines between media, even between point-to-point communications, such as the post, telephone, and telegraph, and mass communications, such as the press, radio, and television. ... So the one-to-one relationship that used to exist between a medium and its use is eroding."*

Pool, I. de Sola (1983). Technologies of Freedom. Belknap: Cambridge, Mass., P.23

## Media Convergence

Thinking about "Convergence" makes you feel dizzy. You start with some concrete, empirical phenomenon, like the technological convergence of access channels and connected services, and invariably you end up with just everything: Every media user having access to everything on every device, every media company selling every type of media product, every kind of media content or communication service getting delivered through every platform or channel.

Of course, this has to do with the nature of media, which have become omnipresent themselves in the last 50 years. Every kind of convergence imaginable (and there are many) invariably is a *media* phenomenon in some way. And "media" are not just technologies for transmitting signs physically from one point to another, but quite complex things that are notoriously difficult to grasp.

In this talk, I understand media, and therefore all kinds of convergence, as *systems of sign circulation* (including, but not restricted to 'communication' in the common sense) whose inner logic and dynamics can be explained as effect of three dimensions:

- a specific *technological dimension* (the physical constraints, the technical tools, the technical 'protocols', the degree of professionality needed,),
- a specific *semantic dimension* (the sign system used, the associated cultural codes or 'protocols'[1]),
- a twofold systemic *social dimension*: the social apparatus on which the functioning of a specific medium is based (e.g. the social system producing television in a given culture and its 'protocols'), and the wider social system connecting the participants of the 'communication' or 'circulation' process (including the 'protocols' of usage).

Media do not come as single. They have to be understood as parts of *media constellations*. In fact, "the media", as we commonly use and understand the term, is in fact not the plural of "medium" (which is now "mediums") but a mass noun ("the media is …"). If we speak of "one medium" we normally do not mean just the specific device (like a TV set) or the physical phenomenon used for the transmission of signs (like sound and/or vision).

A medium (like "TV") is part of a wider constellation which may include print media, radio, cinema, the PC screen, the mobile screen, and formerly also, in some way, the fixed-line telephone. And the technical, cultural and social context of a specific media constellation is quite different historically (e.g. in the 1950s or in the 1970s) and geo-culturally (e.g. in the USA or in Japan). The same goes for the PC, for the mobile phone, etc.

[1] Henry Jenkins introduces the concept of "protocols" taken from a forthcoming publication of Lisa Geitelman (Jenkins 2006, 289, 291). The still somehow vague term covers all those practices which are so closely associated with one medium that they seem to be a 'natural' condition of its usage: technological, economic, legal, social, cultural.

In this perspective, it becomes quite clear that convergence always tends to be about everything. What may converge can be many things: the access channels to the home ("Triple Play"), the technical protocols of transmission ("over IP"), the economic channels (one provider for all services), the culturally encoded 'contents', the associated social practices, the mental and cognitive structures …

The history of media has seen permanent changes, of course, both convergent and divergent, but Convergence with a capital C is happening when one of these changes has fundamental effects on the whole system. So why, and since when, did it become necessary to speak of convergence?

## A Very Short History of "Convergence"

It seems that this turning point in media history had been reached ca. 30 years ago.
In earlier decades, the media environment, although changing all the time, still seemed to have a 'natural' structure.

A "one-to-one relationship used to exist between a medium and its use" (Pool 1983, p. 23): There was audio media, visual media and audiovisual media. Pictures could be static or moving. Radio was one-way, like all broadcasted 'mass media', and the telephone was for one-to-one communication. (Even reading texts, a very peculiar way of seeing language and 'hearing' silent 'voices', seemed to be natural in some way for literate cultures.)

The system of the media appeared to be much simpler than it actually was. 'Natural' relations seemed to define the connections between technological constraints, human perception, and cultural structures, most prominently audio vs. audiovisual media and broadcasted media (for professional information and entertainment) vs. private media (for one-to-one communication).

The history of electric media looked like the emergence of a 'natural' media environment, a history of differentiation and closing of sensual 'gaps'. It started with telegraphy, photography and mass press, then was expanded by telephony, cinema and radio/audio, and finally by TV/video and early computers. There were conflicts, especially when TV integrated functions of radio, print, and cinema, but nobody called this 'convergence' then. It was just seemed to be part of a 'natural' process which tended to fill all parts of the human environment with the appropriate media until, around 1970, a certain level of saturation had been reached.

But the evolution of media didn't stop there. In the 1980s there came cable TV, video, new electronic printing processes, the PC (though then mainly as a DTP tool and for games). The Internet, and the fact that the first hackers used the telephone line for other things than one-to-one voice calls, led to William Gibson envisioning "cyberspace" in 1984, but was not part of the media evolution mainstream for some time.

Just at this point, in 1983, Ithiel de Sola Pool observed a new "convergence of modes of delivery", driven by electronic technology, "blurring the lines between media, even between point-to-point communications, such as the post, telephone, and telegraph, and mass communications, such as the press, radio, and television." (Pool 1983, p. 23)

But a second, independent road to convergence was much more impressive than technological convergence at this time. At first, convergence seemed to be an economical phenomenon. The media entertainment industry was trying to build cross-platform value-chains, across TV, pop-radio & records, cinema, print media … Disney, Sony, Vivendi, Rupert Murdoch et al. did this in different segments of the media market.

When ten years later, in 1995, "media convergence" really became an omnipresent buzzword, the situation had changed. Cross-media merging strategies were in full bloom, but suddenly, with digital multimedia, there seemed to be a 'natural' technological platform for this. "Life after television" was proclaimed, but the vision went much further. Sooner or later, it was assumed, all media content would be going to flow through a single black box in the living room, a sort of blown up PC. The Internet/Web was mainly jus seen as a digital medium for transport and pay. (This was the very time when Bill Gates built his famous fully-digital hi-tech home.)

But again, this concept was short-lived. Two disruptive media were already developing in the mid-90s that would change this picture again in very short time: The World Wide Web proved to be something different than just a perfect new access channel for pulling and/or pushing personalized

media “content”. This idea collapsed with the Dotcom Bubble. And the mobile phone was just seen as a communication *medium* with the possibility of marketing the same old media content (news, celebrities, weather, sports, and porn) in a new way. Meanwhile, game stations became another candidate for the unified media box.

As the media constellation grew much more complicated, phones, around 2003 a third wave of “convergence talk” started: “If the digital revolution paradigm presumed that new media would displace old media, the emerging convergence paradigm assumes that old and new media will interact in even more complex ways.” (Jenkins 2006, p. 6) Still there are phantasies of one black box to rule them all, but the Web has again brought into the foreground the other, more anarchist thread of media evolution, which for some time had been restricted to the pop culture of pirate radios, fanzines and home-taping.

Jenkins is right when claiming that convergence is not an evolution toward unified media. It has to be understood as a dynamic ecosystem, with complementary divergence processes. But still he is stuck with the idea that convergence is just “multiple ways of accessing media content” (p. 243). His book “Convergence Culture” shows a strong bias US-centric bias towards the big screens of TV and the PC (plus game stations). Although he is mentioning the cellphone sometimes as an important part of the new ecology, there is no real integration into his analysis.

**Smart Mobs and Info-Clouds**

The cellphone, or mobile phone, is a strange form of medium/media. In 2000, Howard Rheingold experienced the epiphany which inspired his book "Smart Mobs. Transforming Cultures and Communities in the Age of Instant Access" (2003). In Tokyo, he saw lots of people looking at their phones instead of talking into them, and that blew his mind. When he saw similar behaviour some months later at the other end of the world, in Helsinki, he was convinced that there really was something important going on at a global scale: A change of the media environment.

In "Smart Mobs", Rheingold wrote not only about mobile thumb tribes, but about all kinds of digital technologies of cooperation, about 'ad-hocracies', grid computing, pervasive computing, swarm intelligence. He wrote about the beginnings of the Mobile Web in Japan, but what he never wrote about was the ordinary Web.

In fact, old Usenet pioneers like Rheingold were generally not too excited about the Web. They were interested in 'communication', not 'media', and the Web 1.0 looked for most people like a new, quite revolutionary stage of converging media. Rheingold was fascinated by network structures that were going beyond 'sites' and 'pages'. He still labels this with the all too familiar term “communication”, but in fact it is more than this.

Almost simultaneously, another important book was published, that established a different perspective on digital convergence. David Weinberger's "Small Pieces Loosely Joined" (2002) is neither about mobile phones nor about pervasive computing, it is about the Web, but about the other side of it, the part that is not media-as-we-knew-it, but something else: broken down to small pieces, forerunners of the microcontent-based Web 2.0, which just started off when the book came out.

Neither Rheingold nor Weinberger did use the term "convergence", but if one takes both books together, they give a very interesting and still valid picture of a process still underway. What is blurring, in this perspective, is the boundary between 'publishing' and 'communicating'.

Publishing becomes communication-like: Small pieces in permanent circulation, loosely joined in volatile cloud-like patterns, aggregating and dis-integrating, triggering off chain reactions of annotation and commenting that lead to new small pieces, and so on.

On the other hand, communicating tends to become more like publishing. Mobile "thumb tribes" send archivable short texts not only to each other. What they do is some kind of "skywriting" (Harnad 1990), leaving everywhere they go patterns like aircraft contrails, made out of text and, increasingly, pictures. These "contrails" (Gelernter 2000) can in principle be followed by others and tend to form cloud-like patterns - "personal Info-Clouds" as well as social or local "Info-Clouds" (Vander Wal 2003).

But whereas the social clouds of SMS-networks just are forming with the minds and on the devices of each participant, there are now new hybrid applications like Twitter and Jaiku.

From a Web perspective they look like a very fragmentary form of blogging, with frequent blog posts only up to 140 characters. From the mobile perspective, they look like SMS - on request, the frequently updated presence messages are also been sent to mobile devices for free, creating swarm-like social network structures that are more sustainable and complex than those built on SMS.

Although both applications are working cross-media, mobile and web-based, Twitter (from the USA) tends to be more webby, while Jaiku (from Finland) has been specially designed as a smartphone experience. But in fact, what is emerging here is something new, a convergent media space beyond mobile telecommunication, and beyond the Web as a "docuverse" of hypertexts.

## Cellphne as Media

It is nearly impossible to tell what the media constellations of the future will be like, and when some sort of new saturation and stability will be reached. Especially difficult it is to tell what will become of the mobile phone. There is fixed-mobile convergence, triple play and quadruple play. There are ringtones, SMS and integrated photography. There is convergence with the Internet, with VoIP, e-mail-over-phones, and the Mobile Web 2.0 (Jaokar/Fish 2006). There is convergence with iPod-like devices. We see the emergence of a whole new constellation of audio, voice, pictures, video, and last not least text, but we cannot see what this constellation will be like.

Paul Levinson argues that there are two possible vanishing points of media convergence: Will the cellphone be an adjunct of the Internet, or the other way round? He is opting for the latter: "Physical mobility-plus-connectivity through the world … may be more revolutionary than all the information the Internet brings to us in rooms." (Levinson 2004, p. 8) Some other questions are related: Does it make sense to add 'mobile intimate media' as a new category in its own right to 'mass media', 'electric media', and 'digital media'? Is there really a line from the ballpoint pen, the Kodak camera, and the transistor radio, towards the digital media phone? And, even more important: What is 'mobility' as a point of convergence?

Media scenarios may be classified in degrees of mobility: Cinema, living room radio, living room TV, the Desktop PC and Web Terminal, TV-and-radio-in-every-room, car radio, the laptop, transistor radio, walkman and iPod, the Blackberry, the mobile smartphone. The main difference is that in one case, the user has to enter a special 'media space' (the home, the office, the car), while in the other case media are really acting as "extension of man", of the person, be it on the streets, in the home, or – very importantly – in all the peculiar "non-spaces" of supermodern, globalized civilization. As "non-spaces", Marc Augé (1994) classifies hotels, public transport, shopping malls, airports, and highways.

This perspective is in some way a correction of Levinson's traditional anthropological argumentation. It is not just that "Walking and Talking" has been the natural way of human behaviour since the Stone Age, and therefore a kind of media must be the most powerful which is enabling and augmenting this behaviour. But in Western civilization, sitting down on chair-like devices has become as 'natural' as that.

Formerly there have been embodied individuals immersed in physical space. The first media space was therefore the modern metropolis: the augmentation of physical space with media (newspapers and magazines in cafes, cinema, public telephony). The second media space was the suburban home (radio, TV, fixed-line telephony, print media, the PC). The office was just another instance of such a 'home' space. But the next media space is sort of ubiquituous in a new way, only loosely tied to geography.

Media evolution is *not* about returning to orality, to the body, to a world of 'real communications' after long centuries obsessed with abstract, disembodied written texts and audiovisual media replacing 'real life'. The new kind of media space will also not lead to the complete vanishing of the opposition between body/orality and literacy/mind. It just draws its dynamic and power from this tension. It is located *in between* non-spaces with geographical coordinates, where people tend to use the new mobile, personalized media most intensively, and the abstract space of the Web, where distance and nearness are built on new kinds of socio-semantic network structures. This is also already bringing forward a new relation of orality and literacy: Secondary orality is becoming 'literal' in a way, while the 'secondary literacy' of the Web 2.0 and mobile texting is absorbing characterics of traditional orality.

**Micromedia**

This was preceded in a way by the teenage media spaces of former decades that could just be created by a mobile radio. It implies a new usage of the phone-as-media too: Fixed-line telephony became used in a swarm-like and immersive manner not reducable to exchanging messages between sender and receiver. As McLuhan said, the teenager understands the telephone, while "the Bell Telephone research department … are oblivious to the telephone as a *form*, and study only the content aspect" (McLuhan 2001, p. 292).

But the new converging media space will neither be mobile nor feeling like Bill Gates' outdated futurist home. It will be a micromedia space.

The concept of "micromedia" has been introduced for the first time by the brilliant media theorist Lev Manovich (2000), when he noticed that people were fascinated by playing old games like Tetris on the mobile phone. He then postulated two *diverging* media constellations: one that is driven by broadband and multimedia technologies "toward 'more' – more resolution, better color, better visual fidelity, more bandwidth, more immersion", and one that is on the contrary "characterized by low resolution, low fidelity, and slow speeds".

Macro-media have macro-screens and deliver macro-content that calls for single-focused, long-term attention. Micromedia are typically made for small screens (or, in the case of Web 2.0 widgets, for small fractions of the screen), and they request only semi-focused or peripheric attention. And Manovich prophesized that what he called "minimalist media or *micro-media*" would "not only successfully compete with macro-media but may even overtake it in popularity".

In this perspective, micromedia is not just a poor, less satisfactory early stage of rich "macromedia", but a remarkably stable cultural form of its own right that has just been moving "from platform to platform", from earliest PCs to early game consoles, from the early Internet to web-enabled cell phones. The main advantage seems to be casualness – integration in a complex, multitasking media environment that is spanning across the 'real world', neither separated like cinema or TV nor seamlessly integrated like pervasive computing.

The result is not a surrogate, alternative reality, like TV in Bradbury's "Fahrenheit 451" (1954), "Virtual Reality" around 1992, or "Second Life" now. The media world is converging with the 'real world' up to a point where it makes no sense to even make this difference. In fact, this is what McLuhan was talking about in the 1960s, without really being understood. In a way, we already are living in a "Matrix" world, minus the narrative fiction of a separation between digital reality and 'real bodies'. The difference is just between people taking this world as 'nature' and those trying to 'hack' it.

Micromedia is not defined by technology, but by "microcontent", a concept that has been developed independently, but simultaneously. The first definition says:

"Microcontent is information published in short form, with its length dictated by the constraint of a single main topic and by the physical and technical limitations of the software and devices that we use to view digital content today. We've discovered in the last few years that navigating the web in meme-sized chunks is the natural idiom of the Internet." (Dash 2003, for a fuller, but still provisory definition see Lindner 2006.)

Weinberger's "small pieces loosely joined" (2002) were pointing in the same direction, but Anil Dash was already thinking of the blog phenomenon – he then became Vice President of the blog media enterprise SixApart ("Movable Type", "Typepad", "Vox") which cooperated with Nokia on the mobile "Lifeblog" project. The next step was RSS and feeds, and where this will end cannot be foreseen. The dynamic is breathtaking. At the moment we just can say, that the convergence of the Web 2.0 (and Mobile Web 2.0 is under way. What if will feel like, is difficult to tell.

Micromedia content has proven to be independent from platforms. It may have developed from making the best out of technological constraints, but that's the way cultural forms typically are emerging in a media world, from pop music (electric music made for transistor radios) to Hip Hop and Rap ('hacking' the record player). Media culture is a complex result from feedback loops between technological innovation and cultural appropriation. In a way, this has been institutionalized by Media 2.0.

Microcontent wants to be free. It wants to circulate. It is viral. Digital microcontent is creating open systems of sign circulation that are taking the experience of teenage pop culture (which built a whole immersive media space around pop singles) into mainstream culture. Now not only mp3s and celebrities gossip is circulating, but also news, information and knowledge of all kinds.

As a cultural form, microcontent is the necessary element of an open, dynamic, unpredictable virus-like circulation of signs that fulfils the old promise of electric media: to feel like life itself, and finally being life itself – an emphatic version of life, bigger than the ordinary one, chaotic and ordered at the same time.

## Point of Presence

Designing for the new subject position of microcontent-based media is not the same as "human-centered design". It is just not about taking the human factors better into account, ergonomically and/or psychologically. It has to be based on an analysis of the systematic position that a specific media environment and a specific piece of software are sparing out for individuals to step in. And in the new media environment, there are many diverging devices simultaneously used to access the converging micromedia space.

The characteristic general subject position of (Mobile) Web 2.0 can be characterized, more or less metaphorically, as a "Point of Presence" (PoP). In telecommunications, a PoP is the physical or virtual place where a connection is made available to a user who is dialing up into the network via the local access line. Idehen (2006) later used the term metaphorically to define "Web 2.0":

"A phase in the evolution web usage patterns that emphasizes Web Services based interaction between 'Web Users'' and 'Points of Web Presence' [exposed APIs] over traditional 'Web Users' and 'Web Sites' based interaction. Basically, a transition from visual site interaction to presence based interaction."

But this notion of "Points of Web Presence" can also be turned around. Human minds are part of the Web 2.0 system, which relies largely on "user generated content" and the profiles of user interactions to create its specific dynamics of circulation and personalization.

From this perspective, the Web service is the "user", and the mind of a human individual is the entry point to a mental and semantic human network, to which the service needs to connect itself to create value. So, as soon as the individual is connecting to the Web, a new instance of a 'Point of Presence' is created for both sides.

This seems to be the fundamental principle of vital systems of microcontent circulation: They are neither pure AI nor "people expressing themselves". They are creating hybrid environments that are exactly built on processes of human appropriation of technology and at the same time on digital processing of human input to create new, unforeseeable experiences and possibilities.

This also means that the new media subject, as soon as connecting to the media space, has the characteristic experience of a fresh new start into an open space of possibilities. In a way, the old biographical and the professional identity seems to be erased. At the beginning there is always *just presence*, the 'blank page of the mind', symbolized at first by the minimalist Web 2.0 design of the Google Search start page.

The famous old Microsoft Internet tagline "Where do you want to go today?" is really "Who do you want to become today?" In micromedia space, the implied answers are "anywhere" and "anybody". In a way, in each new session a new persona is being built from scratch, not consciously, but as a by-effect of a flow of clicks and micro-interactions building up an individual story.

Understanding convergence means understanding the micromedia subject position: I becomes more and more related to the life-form of 'digital nomads,' permanently living on the border between non-spaces and media spaces, like the guerilla in "Matrix". New media products, publications, services have to take this into account.

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# Mobile communication and the generation of social cohesion

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## Abstract

This paper will examine the development and maintenance of social cohesion through the use of mobile communication. The paper starts by placing mobile communication into the broader context of sociological analysis. A major theme in the sociological project has been to understand the interaction of social cohesion in the face of various types of technological development. The general idea has been that industrialization and modern society has resulted in transitions. Using the notion of ritual as developed by Durkheim and refined by Goffman and Collins the paper then looks at how mobile communication seems to be supporting the development of social cohesion. The specific cases of romantic involvements and the cohesive functions of gossip, joking/banter and argot are used to better understand this. Portes' question regarding the optimal level of social cohesion in the small group is raised. It is suggested that an over-emphasis on the so-called strong ties, perhaps at the expense of the weak-ties may result in what is referred to as bounded solidarity.

## Introduction

The question of social cohesion and mobile communication follows in the general tradition of sociology. The discipline arose in the wake of industrialization. The early sociologists were interested in understanding the impact of technology on the social structure.

A simple inventory of social institutions – the family, the church, work, education, the city, gender relations, etc. – shows that none of them were left untouched by industrialization. The family for example had been an extended version where several generations lived together and had different roles based on age and gender. Industrialization needed a mobile workforce that was not tide to traditional rural locations, but that could live near the factories. Thus the extended model of the family was often replaced with a more nuclear family of procreation living near the place of work.

The question that naturally arose in this situation was whether we would be able to cohere into social groups given the individualizing tendencies of the new regime. The social scientist of the time developed a series of concepts to describe this tension. Tönnies suggested *gemeinschaft* characterizing the traditional society and *gesellschaft* as the new (1965). Marx looked at the transition from the feudal to the capitalistic (1995) and Durkheim described the transition from mechanical to organic solidarity (1995) while Simmel examined "impulse to sociability" (1949).

The sense here is that given the introduction of a deep-seated shift in society, we would be able to peek behind the curtain, as it were, and gain insight into the fundamental forces of society. This was a type of Garfinklian breaching experiment writ large.

## Ritual interaction and social cohesion

Given this drift, what is the mechanism allowing for social cohesion, or to use the old Durkheimian question, how is society possible? The answer provided by Durkheim is that it is ritual interaction that allows for the development and maintenance of social cohesion.

Ritual is, in some respects a problematic word. It immediately evokes perhaps the wrong image in the mind of the reader. It can mean obsessive behavior. However, in the sense used here it is useful to think of it as a type of catalyst (Ling forthcoming). In the tradition of Durkheim and Goffman, ritual is a process wherein individuals come together and in the context of the moment, progressively drop the barriers to interaction.

> By themselves, individual consciousnesses are actually closed to one another, and they can communicate only by means of signs in which their inner states come to express themselves. For the communication that is opening up between them to end in a communion – that is, in the fusion of all the individual feelings into a common one – the signs that express those feelings must come together in one single resultant. The appearance of this resultant notifies individuals that they are in unison and brings home to them their moral unity. It is by shouting the same cry, saying the same words, and performing the same action in regard to the same object that they arrive at and experience agreement (Durkheim 1995, 231-232).

The basic process of cohesion is that individuals come together in some sort of a setting. In that context they become conscious of one another and, this is the important part, they become mutually aware of each other's engagement in the situation.

Goffman and also Randall Collins played on Durkheim's line of thought but rather than thinking of large scale rituals they see the individuals as responsible for both the staging and the participation in the ritual interactions. It was through the use of these small scale individually authored interaction rituals that we cobble together our everyday sense of social order. In his paper *On deference and demeanor* he writes:

> In this paper I have suggested that Durkheimian notions about primitive religion can be translated into concepts of deference and demeanor, and that these concepts help us to grasp some aspects of urban secular living. The implication is that in one sense this secular world is not as irreligious as we think. Many gods have been done away with, but the individual himself might stubbornly remains as a deity of considerable importance. . . . Perhaps the individual is so viable a god because he can actually understand the ceremonial significance of the way he is treated, and quite on his own can respond dramatically to what is proffered him. In contacts between such deities there is no need for middlemen; each of these gods is able to serve as his own priest. (Goffman 1967, 95)

It is through the observation of deference towards others and the care of our own demeanor that we are able to build up and mind our social interactions. It is through these mundane interactions that social cohesion is developed and preserved. The assertion in this paper is that mobile communication is a phenomenon that has the potential to assist in the development of social cohesion.

# The rise of mobile communication

Mobile communication has diffused into society at a rate that is unprecedented. On a world basis, the number of mobile phones rose 24% between 2000 and 2005. At the same time there were about half as many who had access to the intent (ITU 2005).

One of the unique aspects of mobile communication is that it changes the locus of interaction. When thinking of landline telephony, we call to specific locations. The metaphor is that we call to a person's home, their work or to some other physical location in the hopes that the individual is someplace near by. Woody Allen played on this in his film *Play it again, Sam*, when the self-important character Dick left detailed list of numbers with his calling service telling where he could be reached:

> Dick: I'll be at 362-9296 for a while; then I'll be at 648-0024 for about fifteen minutes; then I'll be at 525-0420; and then I'll be home, at 621-4598. Yeah, right George, bye-bye.
>
> Linda: There's a phone booth on the corner. You want me to run downstairs and get the number? You'll be passing it.

The advent of mobile telephony has taken the edge off this gag. Rather, than calling to a series of places to contact someone, we simply call him or her directly.

Another issue is that, in most cases, the mobile telephone is not a shared object, rather it is privately held. In addition to allowing a personal channel of interaction, it also contains many bits of private information such as call records, saved text messages, telephone numbers of intimates, photos that are more or less revealing (Prøitz 2005) and other traces of our private life (Andersen 2006).

# Mobile communication and mediated ritual

This new channel of interaction allows more nuanced forms of micro-coordination (Ling and Yttri 2002). It provides us with various forms of safety and security (Ling 2004; Baron and Ling forthcoming) as well a different types of phatic interaction (Ling 2005b).

In short, the mobile telephone allows us to elaborate and develop cohesion that is often generated in copresent situations. Thinking, for example of romantic relationships, the meeting of individuals, their wooing and the development of a common sense of involvement is largely a copresent activity. Following the discussion above, it is also a heavily ritualized interaction. There is the need to come into contact and there is the need to engender a mutually recognized sense of the relationship. The couple goes through a series of stages as they enter into a more intense and intimate sense of their coupled status (Ling 2000). Much of the process has to do with the mapping of common interests and the development of a mutual sense of trust. The assembly of the group, the use of "tie signs" (Goffman 1971) the establishment of a mutual focus of attention, the development of a common argot or set of symbols and the building of a barrier to outsiders are all parts of founding an intimate relationship (Collins 2004, 193; Berger and Kellner 1964).

Mediated interaction, and in particular interaction via the mobile telephone is an obvious channel of communication that can be drawn into this work. In survey material from Norway, for example we see that in an interestingly asymmetric finding that 50% of teen girls and 32% of teen boys reported that they had flirted on a weekly basis via the mobile telephone.[1] This finding underscores the role of the mobile phone in this process. Indeed the mobile telephone is well designed for the purpose. It allows for the communication of both synchronous and asynchronous messages directly between the concerned individuals and these messages need not be observed by others.

After the relationship becomes *de facto*, the mobile telephone serves another purpose, namely a channel for phatic interaction. In the case of teen couples who do not live together, the mobile phone provides a medium through which they can exchange endearments at strategic times through the day. In particular, it is common to hear of such exchanges as they prepare to sleep (Ling forthcoming; Ito 2005; Ito and Okabe 2006). Messages wishing one another "G'nite" or "Nite, I love you".[2] Thus the mediated interaction keeps alive the link between the partners. Often it is not the specific words of the text message or content of the call that are important, but rather the process of communicating. The failure to keep this channel alive can have tragic consequences.

The mobile phone can also extend the interaction between lovers. Ito and Okabe report on how teens in Tokyo prepare for a date by exchanging text messages in anticipation of the actual event. They text one another when they are done with work or school, and about the progress of their preparations their negotiation of the transport system and their impending arrival at the agreed upon location for the "flesh meeting." Again, after the date as they part, there is a new round of messages recapping the events of the evening and embroidering their time together with various commentaries. This interaction continues until they are in bed at their respective homes ready to sleep (Ito and Okabe 2005).

The illustration here used the interaction between lovers. Mobile communication also facilitates other forms of interpersonal interaction. The fact that the mobile telephone is a personal device means that we have lowered the threshold to with one another. This means that a part of the ritual world can become mediated. In these rituals we are at the work of developing social cohesion with one another.

# Connected presence

Another issue with the mobile phone is that it lowers the threshold for interaction. The French sociologist Christian Licoppe has examined this and suggested that the mobile telephone supports what he calls connected presence (Licoppe 2004). Instead of saving up the large and small events in anticipa-

[1] $Chi^2$ (6) = 13.68, sig. = 0.033 based on a survey of 1000 persons who were randomly selected from the Norwegian population in 2002.

[2] These come from a sample of text messages gathered in a survey of 2003 randomly selected Norwegians. The messages were collected in 2002. A total of 882 SMS messages from 463 (23%) of the respondents were collected.

tion of a weekly call Licoppe suggests that we have gone over to shorter and impulsive calls and messages. These calls need not be long conversations; they are only to check up and to touch bases. In the process, however, Licoppe states that there is a different type of connection that is developed.

The general idea is that mobile communication actually generates social cohesion and thus is somewhat unique in the annals of techno-social interaction. As noted above, industrialism had ravaging effects on existing social structures. Many other technologies such as the automobile (Flink 2001), TV (Putnam 2000)and possibly even the internet (Kraut *et al.* 1998) have had the opposite effect. It is interesting to note the possibility that the mobile telephone may be a technology that goes against the current.

# The fostering of social cohesion

The assertion that mobile communication fosters cohesion seems to be borne out in several studies that are now emerging. Material from Norway, for example shows that both the frequency of both voice and SMS communication varies with teens' sense of inclusion in their peer group (Ling 2005a). Material from Korea finds some of the same. According to Kim, the mobile telephone supports the development and maintenance of ties with friends and family (2006). Moving to Japan Matsuda (2005, 127) found somewhat the same. In that work, the use of mobile communication was found to be connected with familial and friendship interaction. Smoreda and Thomas examined the use of mobile communication in a nine country European study. Their analysis shows that there was a particularly strong correlation between use and participation in friendship circles (Smoreda and Thomas 2001, 5). Looking to Sub-Saharan Africa, Donner reports that while there is a strong entrepreneurial flavor to mobile phone use there, it is also often used to enhance communication within the family (2005).

The drift of these analyses is that the mobile phone renders the intimate sphere. Rather than facilitating a broad pool of friends and acquaintances, the strong point of the device is that it facilitates interaction within the familiar group. Basing her analysis on material from France, Chantal de Gournay suggests that the mobile phone encourages the scaling down of diffuse social relationships into a group of relatively close friends (2002). This is similar to Matsuda's "full time intimate sphere" (2005, 133) and what Habuchi calls the tele-cocoon (2005, 167).

Looking specifically at texting, there is also some of the same tenor to the analysis. Castells et al, (2004, 152) say that texting acts as a catalyst the development of peer groups. The work of Miyata (2006), Igarashi *et al.* (2005) as well as that of Reid and Reid (2004) indicate that use of texting covaries with participation in smaller and tighter social groups. This is also found in the work by Ishii who notes that "mobile mail [texting] appears to support only a closed network, whereas PC e-mail was found to promote friendship with distant friends" (Ishii 2006, 360).

The general sense is that mobile communication supports interaction within the small intimate group. It supports and extends our ability to engage in ritual interaction. While there is a strong need for co-present interaction in order to maintain the group, mobile communication extends this possibility beyond the here and now. It allows us to exchange bits of gossip, to banter and to flirt when the opportunity presents itself.

# Bounded solidarity

The final question to be addressed here is to examine how this type enhanced in-group interaction will play out in broader social interaction. The material in the previous section seems to point to a society where there are stronger in-group ties. While it may be jarring to experience others who use their phones in our presence, this interaction is positive for the integration of their social clique. When given the choice of talking with an acquaintance or a stranger at the local bus stop, it is perhaps not odd that others choose to talk with a near friend or flirt with a lover.

Rather than establishing what Granovetter (1973) called weak-ties, we nurture our strong ties. The raises the question as to the importance of weak-ties that are the route for important types of information and new influences (Granovetter 1973; Burt *et al.* 1998; Burt 2000; Burt 2001). If the mobile

telephone is refocusing our attention inward within the group then we run the danger of missing out on these broader impulses (Gergen 2005).

One aspect of this bounded solidarity is that it also supports the development of local ideologies. These ideologies are the ownership of the group and they can be used to justify the preference of group ideas and privilege over that of other groups and other persons who are not a part of the privileged circle.

# Conclusion

The core assertion of this paper is that mobile communication has allowed for the development of this type of interaction beyond copresent situations. We are starting to use mobile communication to tie our family or our peer group together in new ways. We use this communications medium to interlace interaction within the group into our everyday activities. To use the apt phrase of Katz and Aakhus, there is perpetual contact (2002).

On the positive side, this integrates the group in ways that were not possible before. Through the reapplication of various types of social interaction to mediated form – flirting, gossip, joking and repartee and argot – the intimate sphere extends its ability to generate social cohesion. This can result in a more tightly integrated group and it can also result in the development of a certain group based élan. There is also the potential for the development of what I term bounded solidarity where the strong internal bonds are privileged at the expense of the weaker social bonds.

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**István Maradi**

# *Beyond the "Two Cultures" Myth: A Chief Technologist Looks at the Human Aspects of Telecommunications Convergence*

We often use the word "convergence" when we talk about technologies and their effects on our everyday life. Information technologies are converging with telecommunications systems and services, fixed-line and mobile networks are converging with each other, our everyday private life converges with our professional activities. Work and our private spheres are not always separable, and a lot of that is due to the convergence of technologies. This is of course not always a negative phenomenon: being more flexible while on the move creates more efficiency, more time, more pleasure in life.

For decades we have clearly separated IT from telecommunications: but with the fast advancement of technologies, more processing power moved into our living room or into our palm than ever. This has created the possibility of shifting work from the offices to our homes, or to the times when we are on the move. Technology has the task first to bring traditionally separate networks (or services) closer to each other. We now talk on PCs, watch TV on our mobile, being instantly available (with the help of instant messages) while on the move, and control our living room's multimedia equipment from remote places.

Convergence has its own set of problems before it hits the users: how to control voice by a processor, how to store and transfer multimedia content over limited bandwidth to homes, and, finally, how to make money from convergence. Converged services are not always the killer applications from the operators' perspective: bringing voice to the PC diminishes the traditional voice revenue, making instant messaging mobile may hit the SMS traffic, and we could go on... Only a handful of converged services may stick.

But the tasks to be solved get even more difficult when we talk about users: how to make things simple, what life situation requires which solution, how to master all the fast-changing technologies? Service designers are facing not only technological issues, but they need to learn more about the behavioural aspects of the users than before. Error and trial may yield more success than well-designed and planned converged services. Nobody could have predicted the success of community sites, video sharing, online chat, or the mobile worker's environments. Does the user need video communications while on the move? Do we need file sharing in our living-room? Will I send pictures from my camera directly to my blog where it can be shared? (And will I pay for it?) All these require converged technologies, but the business models can only be seen after having the

services launched. And money invested in development first… Studies about convergence from social perspecctives are more important than ever, to help technology to move where society would like to see it moving. We need to find out where convergence is coming from. Is it a wish originating with the users, to make their life simpler, or is it the next revenue generator of manufacturers or service providers in search of the next profit wave? Do we really make life simpler with all this technological advancement, or what we make simpler is made more complex by the very options that open up? Say the new multimedia TV in our living room, which is connected to the IP cloud and can be accessed from our mobile, is not working: how can the user set the parameters? Will the users accept such complexity? These are all questions behind the convergence that are worth discussing and analyzing.

**Lynn Marentette**

***Communicating Visually:***
***Ubiquitous Large Screen Displays and Mobile Devices***

Large screen displays support the collaboration of two or more people, especially when the nature of the content is visual. These displays, in the form of walls, windows, boards, and touch-tables, will become ubiquitous in the future, and can be found in workplaces, educational institutions, museums, and other public spaces. New display systems have been developed that allow for co-located communication between groups of people, and also allow for collaboration with individuals in remote locations, using mobile computing or communication devices. This paper will provide an overview of the technologies that support this new way of communication, discuss the challenges involved in establishing "interoperability" within these new systems, and examine the possibilities for the future.

**Dieter Mersch**

# Fractal Spaces and Multiple Actions

## On the Alteration of Space, Time and Action under Circumstances of Convergent Mobile Communication

## 1. Convergent Technologies as Environments

Who speaks of new technologies in the context of the 21st century moves upon the unsure terrain of prognosis. Nonetheless, one thing appears uncontested with regard to the development of fields of technology and of technical communication: their convergence. Under the keyword “Converging Technologies” the amalgamation of NBIC's in the sense of *Nano*, *Bio*, *Info* and *Cogno* is usually meant.[1] This is connected to the vision of an optimising of human living conditions under the banner of new information technologies. This also goes for communication technologies as a special branch of convergence. They seek most of all to overcome barriers of time-, space- and interaction, i.e. the realisation of communication as a process just as ubiquitous as instantaneous. All technological innovations of the last decades are based upon the "regime" of digitality as a "converging principle". Bio- and nanotechnology are unthinkable without the digitalisation of media of analysis and synthesis, just as the connection of cognition science and information science stands under the powerful metaphor of thought as calculation, as Martin Heidegger criticised it already in the 1950's.[2] According to this, there is only convergence in the frame of digital codes; they build the motor as well as the boundaries of technological alignment, the "dispositive", that makes it possible, while limiting it at the same time.

When applied to communication technologies, digitalisation means not only the fusion of text-, voice- and pictoral media, but also of the way of transfer at the global level. Because - in principle - the same format of digital computation applies everywhere, at the lowest level all medial formats can be connected with each other, or converted and transferred to one another, thus allowing for an integration of traditionally separated forms of information, from telephone, over radio and television, to the internet. We are consequently confronted with a metasystem whose foundation is the installation of intelligent software surroundings and global data networks that connect the technologies already present together into a multiversal interactive system, the wireless networks, such as UMTS and the like, becoming ever more significant.[3] Two necessary preconditions, however, are *standardasation*, i.e. that the standards, devices and interfaces be rendered universal, and secondly, *multifunctionality*, such that cellular phones, televisions, game consoles and the like become complete minicomputers, that simultaneously process image, text and sound, while taking on network- and storage tasks. We are, then, not only confronted with individual technological objects that support interactions, but with entire environments that oversee and control everyday life just as much as the user has to program them to adjust them to his own demands. As technologies, they reveal themselves never to be merely neutral, but they rather configure lifestyles, just as, vice versa, agents can "transcribe" them, and assign to them entirely new uses. Convergent technologies tend to extension, just because they take on the form of environments: they build facades that must be inhabited, and whose meridians must be appropriated.

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1 Cf. e.g. G. Banse, I. Hronsky, G. Nelson, G. (eds.): *Converging Technologies. Promises and Challenges*. Berlin 2006

2 Martin Heidegger: "Wissenschaft und Besinnung", in: ipsius, *Vorträge und Aufsätze*, Pfullingen 1954, pp. 41sqq. and further ipsius: *Gelassenheit*, Pfullingen 1959, pp. 12sq.

3 Cf. Paul Golding: "Die Zukunft der Mobiltelefonie im Zeitalter der dritten Handygeneration (UMTS)", in: P. Glotz, St. Bertschi, Ch. Locke (eds.): *Daumenkultur. Das Mobiltelefon in der Gesellschaft*, Bielefeld 2006, pp. 278sqq.

## 2. Gains and Losses

At the cultural level this development yields a series of consequences which would need accordingly to be interpreted according to gain and loss. No so-called technical "progress" offers only advantages; rather, its own negativity remains ever immanent. Clearly convergence necessitates a readjustment of all technical systems and lifestyles, thus giving rise to new social distinctions and disavowals, especially through the question of who participates and who remains excluded. Furthermore, universalisation conditions an adjustment of products in their technical depth structure, which stands opposite to the diversification of their design at the superficial level. With the growing connection of devices and the expanding possibilities for connection, counterfinal effects are simultaneously brought about, such as a no longer manageable flood of information or the implosion of communication through spam, viruses and the like, which expand out over all systems, mutating in them. At the level of contents we find ourselves further confronted with cumbersome remediation processes that provide an accelerating recycling of formats, genres and products and force their wearout. They imply the formation of hybrids and a migration of aesthetics, as has been discussed in art theory as "cresolisation,[4] whose supposed plurality, especially in the area of pop cults rather tapers off toward a formation of stereotypes. Mixing, as well as the instantaneous accessibility of information at any time or place, further provokes a digital constructivism, on whose back the shadow of a predominance of the digital can be noticed, which has long since begun to recoil onto all thought schemes. We not only use digital media, but we also think digitally, i.e. in discrete steps and their operative connection in a network.

*One* effect of this development is the *suppression* of the analogues, i.e. even the relevance of that which Nelson Goodman placed under the metaphors of plenitude and density,[5] and includes the materiality of things and media. *Another* is the growth of ideologies of convenient accessibility and of constructivism, which tend to give preference to immaterial arrangements over material ones. Furthermore, variety and easy accessibility without spatial or temporal restrictions is a widespread illusion especially of mobile communication technologies. These are, in turn, nourished by the phantasm of relation and proximity in – in the literal sense - simultaneous "aus-räumung" [out-spacing/clearing out] and "ent-fernung"[de-distancing/removal] of the other, as can be gleaned especially from mobile telephone culture, which, along with the internet, constitutes a large part of global communication.

The desire for universal accessibility on the one hand, as well as distance, exclusion and placelessness on the other, condition each other mutually. The "postmodern" ideology of communication suffers greatly from this ambivalence, which it seeks to solve by forcing connectionality, in order to magnify its double-sided effects successively. This short-sightedness for consequences and blindness to ambiguity is inherent in all technical innovations.

Among the forms of technical communication, the mobile form occupies a special place, insofar as its use appears to belong to an intimate culture regulated above all by the construction of that to which one might polemically refer as the "public-private", which is intent on destabilising the hitherto customary differences between publicity and intimacy. Not only is the function of the cell phone restricted to ubiquity and the delimitation of *face-to-face* interactions; its function rather serves, as Kristof Nyíri rightly emphasised, as a typical communication tool in post-modern society[6] at the same time for self-management and for the organisation of the entire sphere of personal relations. This includes as integral constituents the calling up of videos, sounds, SMS or MMS, and vice versa, the feeding of spontaneously generated recordings or snapshots into moblogs and internet portals, such as Youtube and Myspace. As the most important "portable", that is worn on the body in constant contact with its owner, and thus literally realises Marshall McLuhan's extension thesis, it is just as suitable for personalisation and indulgence of fetishes, as can be seen from the options, rings, buttons, etc. At the same time incorporated and libidinously charged as a technical artifact, an aesthetic object and a bodily appendage, which is reflected as well in its appellation "umbilical cord" [„Nabelschur“], it guarantees constant contact to the intimate circle of private communities.[7] Cell phone cultures attach

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4 Cf. Documenta 11, Plattform 5, Katalog, Ostfildern-Ruit 2002

5 Nelson Goodman: *Sprachen der Kunst*, Frankfurt/M 1996, pp. 212sqq.

6 Kristóf Nyíri,: "Das Mobiltelefon als Rückkehr zu nichtentfremdeter Kommunikation", in: P. Glotz, St. Bertschi, Ch. Locke (eds.): *Daumenkultur*, l.c., p. 194.

7 Cf. Richard Ling: *The Mobile Connection: The Cell Phone's Impact on Society*, San Francisco 2004, p. 48.

themselves in such a way to the wish landscapes of early childhood symbiosis, which with all the symptoms of social dependency, react to the growing decentralisation and fragmenting of cities.[8] It must not be forgotten, though, that the cell phone, just as much as it makes possible direct communication, also sharpens the pressure of communication, so that the reliability of being plugged in and accessible everywhere is answered with the requirement that one be accessible. To the feeling of security which most of those surveyed gave as their reason for purchasing a mobile phone corresponds thus an intensification of control.[9] Therefore, it appears to be no mere coincidence that the outer form of a cellular phone bears such a great resemblance to a remote control.[10] Both, security and control on the one hand, and narcissism and symbiosis thus build correlates. Mobile communication is apparently in the process of configuring the structures of the social anew.

## 3. Fractalisation of Times, Spaces and Actions

This new configuration shall here be more closely illuminated in changing experiences of time, space and action under conditions of converging and mobile media. The success and popularity of the mobile telephone has been attributed especially to a return to "less alienated" [„unentfremdeter“] communication.[11] The dissolution of spatial and temporal restrictions along with the constant connectionality is certainly one of the most outstanding characteristics of cell phone culture, to which conversely that assurance of place corresponds, which as a marker in space introduces nearly every conversation. The necessity of localisation is here like unto the determination of coordinates on an imaginary map, which makes clear how deep mobile communication has already reached into space and the experience of space. At the same time, the cell phone user inhabits a territory of simultaneous presences, which demand simultaneous reaction to the most different situations.[12] The communicative format of mobile telephony is hence presence, which attaches the index of the here and now, as well as up-to-dateness to every conversation, and lends to its social utilisation a character of spontaneity that conversely determines the current circumscription of space. The mobile phone thus serves as a means of navigation, just as it transforms urban space on the other hand into a mass of passages which return the anonymity of the street to the actors, these being constantly able to occupy them anew. They literally set the space in motion, allowing it to become dynamic, so that in the middle of urban structures an invasion takes place that not only blurs over the traditional boundary lines between public and private, but most of all the difference between experienced viewing space and virtual, communicative occurrence. Simultaneity is shattered here and there and in various places and at various moments by space into a multiplicity of disparate fields which refuse the classical postulate of visibility just as much as their synthesis to a unified continuum free of contradiction fails. Space is then a variable multiplicity, a series of regions with porous boundaries, disavowals and unstable zones, whose levels penetrate each other, leaving behind unclear dimensions.
The effect is yet amplified through medial convergences and the simultaneous occupation in films, videos, music, communications, scripts, icons etc. Not their legibility is of interest, but their climate, their swift alteration. Accordingly, Mark Poster indicated that persons just as well as information travel henceforth in different ways through spaces and enter places that remain diffuse, overlying each other multiply in the form of a "multiplicity and dispersion of mediatized and non-mediatized spaces".[13] Space is no longer anything unified than is time, but is rather a "folding" of processes in which the individual must define and locate himself anew at each moment.

> "As we shift scenes to the late twentieth and early twenty-first centuries, our urbanite is laden with the gear of information machinery: a beeper, a mobile phone, a personal digital assistant, an MP3-Player or walkman, a palmtop computer. In these postmodern

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8 Fortunati, *Das Mobiltelefon als technologisches Artefakt*, l.c., p. 180.
9 Ling: *The Mobile Connection*, l.c., p. 35ff; on control cf. James Katz: *Connections: Social and Cultural Studies of the Telephone in American Life*, New Brunswick 1999, p. 17.
10 Fortunati, *Das Mobiltelefon als technologisches Artefakt*, l.c., p. 172.
11 Nyíri, *Das Mobiltelefon als Rückkehr zu nichtentfremdeter Kommunikation*, l.c., pp. 185sqq.
12 Siehe dazu die Untersuchungen von Anthony Townsend: Life in Real-Time City: Mobile Telefones and Urban Metabolism, in: Journal of Urban Technology 7 (2), p. 85-104.
13 Mark Poster: "Digitally local. Communications Technologies and Space", in: Kristóf Nyíri (ed.): *A Sense of Place. The Global and the Local in Mobile Communication*, Vienna 2005, p. 34.

> geographies (…) one is simultaneously in several places, with perhaps an different identity in each location, seeing what appears before one in the street, but listening to a distant, telephonic voice or engaged in online gaming with participants from all over the globale. Space is now at once nearby and distant, local and global, but also multiple and fragmented, morphing the urban body not only into diverse shapes but also into several incarnations (…)."[14]

Apparently, mobile communication dissolves the relation to space to such an extent that henceforth only interspaces, intraspaces or broken territories and areas with undefined edges are generated which overlap one another or conflict with each other or neutralise each other mutually. Poster sought to grasp them with Michel Foucault's concept of "heterotopy", although this does not name the phenomenon of spatial multiplicity and delimiting at all, but "places of resistance" [„Orte der Widersetzung"] and "counterspaces".[15] It would be much more appropriate, therefore, to speak of "fractal spaces", inasmuch as the concept of the fractal in the mathematic sense describes figures of broken, in part even irrational dimensionality, which here function as a metaphor for cracked and not firm manifolds. They reveal themselves to be characteristic for the perception and treatment of urban and medial spaces that are changing and have become diaphanous, as when a ride through a subway tunnel connects two points lying at a distance to one another without any consciousness of their relation to each other, while screens direct the gaze into imaginary depth dimensions, and a connection is maintained to other travelers via mobile telephone. The simultaneity of presences and the demand to react introduces a fracture into spatial experience, allowing it literally to shatter.

## 4. Multitasking

Fractality is consequently a metaphor for labyrinthine interspatiality and spatial dynamics without a centre. Rather than of Foucault's heterotopies, they are more reminiscent of Gilles Deleuze' and Felix Guattaris "rhizomatics".[16] Comparable to a mess of lies without beginning or end, of a labyrinthine net structure, it renders its inhabitant a nomad, who moves not along stable axes, but "slips" from place to place, and whose only instrument is navigation. If this image was glorified as a new model of identity in the 1980's, a quasi-alternative model of communication corresponds to it, which itself does without a centre. Mobility is its fetish and its boundary. If, as already said, mobil communication poses itself as the adequate medium of interaction in postmodernity, its correlate is this fractal nomadic, which requires other laws of experience and orientation, for which space and time consequently no longer serve as apriori forms or transcendental categories of order, but whose middle point is defined by mobility itself. Places and times are then only produced by motion, so that we are confronted with topologies whose crossing through requires a feedback and self-assurance that cannot occur otherwise than through interactions. Communicativity and interactivity thus exhibit a self-referential trait, embodied in the modern urban nomads, wandering in hordes of adolescent bodies from one event to the next, and inseparably connected to the constant use of their mobile phones. If it includes the dissolution of space and the disappearance of that knowing-one's-way-about which provides belonging, then it finally renders its user placeless. In spite of a supposedly globalised world, and because of the constant presence of information, images, sounds and voices, we are less and less sure of where we are, because we simultaneously inhabit many spaces, that have sacrificed their transparency and classification with one another once and for all.

It must be added that the same goes for the action patterns that go with it. Multiple spaces demand multiple forms of action, so that the fractalisation of spaces and times not only conditions a simultaneity of presence in fragmented surroundings, but just as much produces new scenarios of activities that react to them, continuing and circumscribing them. They can be described with the concept of "multitasking", taken from computer science.[17] If this originally means the parallel management of pieced apart program sequences that optimises the computers' workload efficiency, the expression here is transformed into an image of a lifestyle adapted to mobility and multiplicity. Where

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14 ibid., pp. 38, 40.
15 Michel Foucault, *Die Heterotopien*. Frankfurt/M 2005, p. 10.
16 Gilles Deleuze, Felix Guattari, *Tausend Plateaus*, Berlin 1992, pp. 657 sqq.
17 see: Winfried Gerling, Peter Bexte: *Multitasking*, Katalog, Berlin 2007 (to appear soon).

we move about at the same time in various spaces, situations, actions or interactions, where we telephone, read e-mails, download files from the internet, look for ways to navigate, shop or send images, and communicate with others, we adapt the model of simultaneous processing and adapt ourselves to its digital scheme. Multitasking then means the transfer of multiple program steps to complex information environments that force comparable tasks. It thereby comes to an unavoidable competence in convergent communication spaces, transmission channels and technologies. To this corresponds the tendency toward a greater density of information flow and pulse acceleration, written into the subjects by "parallel processing" as a new cultural technique which cannot but colour them positively and declare them a lifestyle. The cell phone is its emblem. For, in a certain way, constantly "ready to hand", it can be described as a crystallisation point of multitasking, as energy centre that combines mobility with speed and fingertip control. Like a terminal *en miniature*, it commands the simultaneity of acoustic and visual signals, steered by a tactile agility that can call up different functions simultaneously. The hand literally coordinates multiple worlds, maneuvering through them with the help of a device which is itself at all times "ready to hand", uniting mobility, connectedness to a network, personal contacts and visual entertainment in a space the size of a brick.

# Communicating Science in the Age of Telecommunications Convergence

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Scientists tend to complain of negligence, underestimation, of being ignored, and misunderstood. Throughout the history of science, scientists used all kinds of communications technologies to convince the wide audience about the utmost importance of their results but they have never been satisfied with the outcome of their efforts. They thought the public to be shamefully and dangerously ignorant. We held a number of news conferences and we participated in radio or television programs to inform the press about the interesting philosophical, psychological, sociological or linguistic results achieved by our project, Communications in the 21st Century. We presented interpretations of a varieties of mobile usage, the exciting new social phenomena connected with it, and its possible future potentials. Yet, at all news conferences, we were asked, in suspicious tones, whether mobile phones make health risk to people. In our replies, we cited the scientific literature that denied the health risk rumors. Still, we saw the same looks on the reporters although they all had their beloved shiny, colorful, ringing telephones in their packets.

I will analyze this paradox communication situation relying on the description of a new kind of science was that required a change in the communication between scientists and nonscientists. The problem of health risks of mobile phones exemplifies both the new science and its communication problems. I investigate this communications situation in relations with the converging digital communications technology without intending to decide whether mobile phones are in fact risky or not. Indeed, converging communications technology has provided the scientists with extraordinarily effective devices to continue their age old fight for being understood and appreciated. The question is how they can use this technology and whether converging digital technology of communication makes them more successful in the communication of scientific ideas or not?

I argue that the new kind of science shows similar structural features as the converging digital communications. First, I will characterize some structural aspects of this communications technology. Then, I analyze the traditional popularization of science from the point of view of communication between a lay audience and a learned expert. Finally, the non-traditional, post-normal science will be depicted in relation to its almost addictive dependence on communication.

## Some features of media convergence

The term 'convergence' has a broad meaning. Usually it is used to designate unification of very different things. Recently, various science policy boards have brought into focus ‘converging technologies,’ CT, as the most important future tendency in the 21st century. In 2004, the European Commission published a report on Converging Technologies, prepared by a high level expert group, entitled Foresighting the New Technology Wave. The report defined CT as "enabling technologies and knowledge systems that enable each other in the pursuit of a common goal."[1] 'Enabling technology' is used in the sense that some branches of technology serve each other, become intertwined, and develop on a broad front. In the same way, the report speaks of enabling knowledge systems or technology-enabling scientific knowledge. It assumes that in the 21st century, informationtechnology, nanotechnology, biotechnology, and cognitive science will converge, and merge into enabling technologies. The point of convergence, the common basis of these technological branches is that they all operate at the atomic level. Nanotechnology manipulates atoms, biotechnology works with genes, cognitive science with neurons, and information technology with bits. The convergence of nano-bio-info-cogno sciences, presume a material unity at nano level which integrates organic and inorganic, living and non-living parts of nature.

[1] Alfred Nordmann (Rapporteur*), Foresighting the New Technology Wave*. *Converging Technologies: Shaping the Future of European Societies*. Report, 2004.

In the United States, the general policy goal is to "improve human performance," both physically and cognitively, in industrial plants, offices, shops, libraries or laboratories. The American policy report stressed that "with proper attention to ethical issues
and societal needs, converging technologies could achieve a tremendous improvement in human abilities, societal outcomes, the nation's productivity, and the quality of life. This is a broad, cross-cutting, emerging and timely opportunity of interest to individuals, society and humanity in the long term. The phrase 'convergent technologies' refers to the synergistic combination of four major (nano-bio-info-cogno) provinces of science and technology, each of which is currently progressing at a rapid rate."[2] The committee attributed a tremendous significance to convergent technologies. The authors continued: "Moving forward simultaneously along many of these paths could achieve a golden
age that would be a turning point for human productivity and quality of life. Technological convergence could become the framework for human convergence. The twenty-first century could end in world peace, universal prosperity, and evolution to a higher level of compassion and accomplishment. It is hard to find the right metaphor to see a century into the future, but it may be that humanity would become like a single, distributed and interconnected brain based in new core pathways of society. This will be an enhancement to the productivity and independence of individuals, giving them greater opportunities to achieve personal goals. Vision of the world as a distributed, interconnected brain with various architectural levels, which can empower individuals with access to collective knowledge while safeguarding privacy."[3]

The European community documents do not attribute such an all embracing redemption potential to technological convergence. Instead, in a practical, political tone the committee stressed that its program "contributes to the implementation of the Lisbon Strategy regarding employment, competitiveness at international level, the economic reform and the social cohesion within the European Union." It included into convergence some fields of social sciences, such as sociology, anthropology and philosophy, using the formula of Nano-Bio-Info-Cogno-Socio-Anthro-Philo.[4] The European group suggested working on particular projects, such as CTs for natural language processing, for the treatment of obesity, or CTs for intelligent dwelling. This team worked out scenarios for technological convergence in fields of Education, Health, Energy, Infrastructure, Environment and Public Safety (including security). The group noted that CT applications might offer "an opportunity to solve societal problems, to benefit individuals, and to generate wealth," although they also pose "threats to culture and tradition, to human integrity and autonomy, perhaps to political and economic stability."[5]

Undoubtedly, converging technologies constitute a central issue in the image of future both in Europe and the United States. A common element of the two strategies is that the various nanolevel technologies will radically change Western civilization; another common element is that these technologies converge.

Telecommunications is a constituent and a subspecies of converging technologies. Subspecies in the sense that telecommunications itself is a system of particular converging communications technologies. Convergence of telecommunications has several meanings. Firstly, in the commercial meaning, telecommunications convergence denotes a package containing four services offered by the companies. The "quadruple play", as it is called in Britain, is a combination of fixed and mobile telephony, broadband Internet access and multichannel television. The companies give a better price for the combination of the four converging services than for the services one by one. The second meaning is a technological one. Various services can be handled in the same way because they travel in the form of packets of data, encoded by using internet protocol, or IP. IP can encode telephone conversations, text and photo messages, video calls and television channels. The technological meaning also includes the network that carries the packets, both the fiber optic network and the wireless third-generation" (3G) network. The ultimate goal is to have one IP infrastructure, a converged world of one network

[2] Mihail C. Roco and William Sims Bainbridge (eds*.), Converging Technologies for Improving Human Performance: Nanotechnology, biotechnology, information technology and cognitive science.* NSF/DOC-sponsored report. Arlington Virginia: National Science Foundation, June 2002. (Prepublication on-line version.) http://www.technology.gov/reports/2002/NBIC/Part1.pdf}.
[3] Ibid.
[4] ref. 1.
[5] *Foresighting the New Technology Wave, Quality of Life*, European Communities, 2004. ftp://ftp.cordis.europa.eu/pub/foresight/docs/ntw_sig1_en.pdf

carrying many services.[6] Thirdly, telecommunications convergence denotes an object: the multifunctional mobile phone. Mobile phones originally were used for conversations and short messages. Recently they have changed into a portable hand-held device of universal utility with many functions, such as voice, Internet, credit card, and television applications. The telephone is a camera, voice and video recorder and player, television and radio set, and a computer.

The fourth meaning of telecommunications convergence is related to the functions. In the past, the different devices constituted different media. In telecommunications convergence, they have merged into one large medium. Printed and spoken texts, music and pictures, data and voice, have create a new unified media space in which video conversation through Skype can be combined with parallel emailing, usage of commerce services, banking, managing business, reading newspapers, discussing and initiating political actions, watching movies. Private and public, global and local matters can be managed or just watched at YouTube. This is more than telecommunications convergence, this is media convergence. Telegraph, telephone, radio, television, Internet, CD, book, and newspaper merge into one entity. By convergence they become more than the sum of each elements. They have synergetic and co-evolutionary effect. They constitute a networked system of communication instruments, functions and contents. The most important change is a ubiquitous interactivity. A television show can be commented real time by short text messages, a piece of music can be exchanged to another one with a partner, a text be supplemented by picture illustration or data that verify or falsify the statement.

Media convergence secures the networked, multifunctional, interactive, digital space in which all kinds of matters can be managed privately or publicly. This is exactly the medium the new type of science needs.

**Communication of traditional science**

The traditional model of the communication between scientists and a lay audience is based on the assumption that scientists acquired knowledge from their studies on nature or people. Lay people, the audience, on the other hand, do not own this intellectual asset. Scientists want to share their knowledge for bridging this knowledge gap. This arrangement between people who know and who do not know is called deficit model. The audience has a knowledge deficit that the scientist aims at eliminating. The scientist is tacitly supposed to be like Galileo, Newton or Einstein, a towering figure, a great mind, an unselfish person who feels obliged to serve mankind and his own society. The deficit model explains a large amount of popular publications born from the earliest times of science. At the turn of 19-20$^{th}$ centuries, people liked to read books such as Ernst Mach's *Populär-wissenschaftliche Vorlesungen*, somewhat later Albert Einstein's *The Special and General Theory of Relativity*. George Polya published a best seller on mathematics, entitled *How to Solve it*?.[7] When someone wanted to know about the elephant, he just took *The Animalworld* by Brehm. Indeed, popularization of science had its own classic literature that survived a long period. Popular science created specific genres. Besides books, journals, articles and lectures delivered to a large lay audience, natural history museums served the goal of popularization by their huge skeletons, glittering minerals, rare plants. They have been a place to visit since the 19$^{th}$ century. In modern times, the journal *National Geographic* became a big success particularly for its beautiful photos. David Attenborough's films on nature in the movies and television are big hits. Television channels were set up to for popularizing since, such as Spectrum or Animal Planet. However different their methods of persuasion are, these works are based on the deficit model.[8]

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[6] *Your television is ringing. Economist*, 381. 10/14/2006.

[7] Ernst Mach, *Populär-wissenschaftliche Vorlesungen*. Leipzig, 1896., Albert Einstein, *Über die spezielle und die allgemeine Relativitätstheorie*. Braunschweig: Druck und Verlag von Friedlich Vieweg und Dohn, 1921., George Polya, *How to Solve It*? Princeton: Princeton University Press, 1945., Alfred Edmund Brehm, Eduard Oskar Schmidt, and Ernst Ludwig Taschenberg, *Brehms Thierleben. Allgemeine Kunde des Thierreichs*. 2$^{nd}$, expanded, ed. 10 vols. Leipzig: Bibliographisches Institut, 1876–1879; reprinted 1882–1884.

[8] The deficit model, as a framework for describing popularization has been justifiably criticized for simplifying both science and the knowledge of the audience. Yet, as a first approximation, it seems useful for our present purpose. Richard Whitley presented a very good general analysis of popularization. He criticized "the traditional view", and worked out a contextual view of popularization of science. See Richard Whitley, "Knowledge

Ludwig Fleck analyzed popularization of science in his seminal book in the 1930s. He suggested that that science has various types from the point of view of its communication. Popular science is one of these types. He connected the types of science with communicating groups, called 'thought collective' (Denkkollektiv), which are characterized by a 'thought style' (Denkstil) shared by the members. Their common thought style provides basis for the members of a thought collective to understand each other while discussing ideas. The thought collective consists of an esoteric and an exoteric circle. The former includes the specialists, while the latter the non-specialists, with two subgroups: the students who will become experts and the lay audience. Specialists communicate with each other mainly by journal articles, while non-specialist experts rely on handbooks, and students on textbooks. Popular science speaks to the exoteric circle, to the lay audience or to people who are uneducated in a particular field. By this sociological analysis, Fleck included lay people into science. He considered lay people to be members of the thought collective. Neither the circles are closed, nor are the types of science insulated from each other. Fleck supposed that knowledge circulates between these types.[9]

Fleck recognized that the character of scientific knowledge depends on the addressed audience and on the genre of communication. Specialist experts communicate a kind of tentative, mosaic-like, local, often unclear knowledge in journals red by their peers. Popular science, in contrast, is characterized by its certainty, simplicity and vividness. Richard Whitley reminded of other two relevant features of popular science: it is authoritative and decontextualized. Journal science explains all the connections of the studied problem with earlier results and other researcher approaches. It points at the circumstantial elements of the given investigation. Popular science, in turn, delivers the standpoint of science as certainty beyond any doubt, as the universal truth disregarding the context of the statements.[10]

More recently, investigations on popular science have been carried on in a framework called public understanding of science.[11] The researchers engaged in the subject scrutinized the basic notions of the deficit model, such as the structure of the audience's knowledge (in many quantitative investigations pioneered by Jon Miller)[12], or the sociological, gender, cultural, intellectual and practical context that influences the reaction of the audience to scientific issues. Big difference could be shown in knowing about issues like the Earth revolves around the Sun or vice versa, or do GMO plants have genes, and what is the best diet for a diabetic person or how to minimize energy consumption in ones home. These investigations raise the issue of the nature of the present day scientific knowledge, whether Galileo, Newton or Einstein still represents scientific knowledge in its entirety or they only represent a special kind of scientific knowledge among many other kinds. Indeed, Fleck's analysis relied on a case study on the history of syphilis, while in his very relevant study, Hilgartner analyzed a case on the causes of cancer.[13]

Some of these studies investigated the popular scientific works or the pictures of sciences as they appeared in one or another type of medium. The newspapers, movies, or television are obvious target places of these investigations. Our present context brings into focus the common structural features of these communication technological devices. All of them work in a fixed situation. Whatever we mean by science or whatever the audience has in its mind, the audience consists of passive,

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producers and knowledge acquirers: Popularization as a Relation Between Scientific Fields and their Publics," In: Terry Shinn, Richard Whitley (eds*.), Expository Science: Forms and Functions of Popularization. Sociology of the Sciences*, Vol. 9. Dordrecht, Boston, London: Kluwer Academic Publisher, 1985. 3-28.

9 Ludwig Fleck, *Genesis and Development of a Scientific Fact.* (Chicago and London, 1979, first published in 1935).

10 R. Whitley, ref 7. p. 12-14.

11 See Brian Wynne, "Public Understanding of Science," in: Sheila Jasanoff, et all (eds.) *Handbook of Science and Technology Studies.* Revised edition. London, New Delhi: Sage Publications, 1995. 361-388.

12 Miller published a number of reports on how public understands science. See e.g., Jon Miller, Raphael Pardo and Fujio Niwa, *Public Perceptions of Science and Technology: A Comparative Study of the European Union, the United States, Japan, and Canada.* Madrid: BBV Foundation, 1997., Jon Miller, Linda Kimmel, *Biomedical Communications*. New York: Academic Press, 2001. A relevant article: Jon D. Miller, "Civic Scientific Literacy: A Necessity in the 21st Century," *The Journal of the Federation of American Scientists*. 55.1. 2002. 1-4.

13 Stephen Hilgartner, "The Dominant View of Popularization: Conceptual Problems, Political Uses," *Social Studies of Science*, 20. 3. 1990. 519-539.

individual recipients, and the scientific program is delivered by an individual or institutional authority. In the deficit model, empty heads are filled from full heads. Knowledge flows from one source to many places. Book, television, movie or lecture repeats the same communication situation. Convergent media could perhaps strengthen the effect of popular science by making it more persuasive but it does not bring any radical change in its Fleckian features of certainty, simplicity and vividness or in its authoritative and decontextualized character.

**Communication of Post-Normal Science**

The health risk of mobile phones cannot be discussed in the framework of popularization. The placement of a transmitter on the roof of a house provokes discussion about the possible harm electromagnetic waves may cause in human organisms. The experts could not expose an opinion beyond any doubt. They could say that they have no convincing theory about the effect of electromagnetic waves upon living organisms in general. They assure the audience that in spite of extended researches, experts could not find cases that would prove any harm. However, some news appeared here and there accounting investigations that came to the opposite conclusion.

An article published in *The Times*, in 2005 said: "Professor Sir William Stewart, chairman of the National Radiological Protection Board (NRPB), said that evidence of potentially harmful effects had become more persuasive over the past five years." Then it goes on saying: "In his report, Mobile Phones and Health, Sir William said that four studies have caused concern. One ten-year study in Sweden suggests that heavy mobile users are more prone to non-malignant tumours in the ear and brain while a Dutch study had suggested changes in cognitive function. A German study has hinted at an increase in cancer around base stations, while a project supported by the EU had shown evidence of cell damage from fields typical of those of mobile phones." From this, one can conclude that mobile phones are dangerous, we may have to think on throwing out our phones. Perhaps local authorities should forbid the placement of transmitters on the roofs. But the article continued: “All of these studies have yet to be replicated and are of varying quality but we can’t dismiss them out of hand.”[14] So maybe we can still wait to get rid of our mobile phones. How can we decide? Similar problems arise in a number of fields, such as nuclear energy (the classic case), environmental studies, climate researches and meteorology, some areas of medicine and dietary, or in the field of gene modified plants.

Many of these scientific subjects are not new at all but their significance has grown fast in the last twenty years. Silvio Funtowicz and Jerome Ravetz coined these earlier neglected fields post-normal sciences. The name refers to Thomas Kuhn's term, normal science characterized by a largely internal puzzle solving activity. According to Funtowicz and Ravetz: "In this ‘normal’ state of science, uncertainties are managed automatically, values are unspoken, and foundational problems unheard of." In contrast, in post-normal science "uncertainty is not banished but is managed, and values are not presupposed but are made explicit. The model for scientific argument is not a formalized deduction but an interactive dialogue. The paradigmatic science is no longer one in which location (in place and time) and process are irrelevant to explanations."[15] The authors define post-normal science as "'wild' area that lies beyond professional practice, " where "facts are uncertain, values in dispute, stakes high, and decisions urgent."[16]

Funtowicz and Ravetz classify sciences from two points of views: systems uncertainty and decision stakes. In cases, such as health-risk of the mobile phone, GMOs, or climate, the basic phenomena are novel, too complex and variable to be clearly understood. Facts are not collected under controlled circumstances. Because systematic experimental works or field studies are missing, the numerical data are guesses made by experts. In the lack of well-founded theories and reliable facts, computer simulations and models based on statistics are used for making predictions. Software substitutes the theory. If the input is uncertain, the output cannot be more certain. As the investigated

[14] "Mobile phones tumour risk to young children," *The Times*, January 12, 2005. http://www.timesonline.co.uk/tol/news/uk/article411329.ece

[15] Silvio 0. Funtowicz, Jerome R. Ravetz, "Science for the Post-Normal Age," *Futures*, September 1993, 740.

[16] Silvio 0. Funtowicz, Jerome R. Ravetz, "Three Types of Risk Assesment and the Emergence of Post-Normal Science," In: Sheldon Krimsky, Dominic Golding (eds.), *Social Theory of Risk.* New York: Greenwood Press, 1992. 251-273.

system is uncertain, the stake of decision-making becomes very high. In the science of Galileo, Newton and Einstein, the investigated systems, such the falling stone, the movement of the stars, or the speed of light were incomparably more certain than the changes in the atmosphere or the ecological equilibrium. In this situation, local knowledge about whether, animals, or even about the effect of a nuclear power station is appreciated. Individual cases, old traditions and other previously neglected kinds of knowledge gain new significance.[17] Futowicz and Ravetz speak about an "extended peer community," that includes lay people.

Decisions based on traditional sciences took incomparably smaller risk than in post-normal sciences. Yet, decisions should be made about the places of mobile phone transmitters, exhaustion of cars, prohibition of smoking, placements of nuclear plants, of growing GM plants, and many other things. The only rational possibility is the negotiations between the stakeholders. Politics, business, science, NGOs, local authorities, civilians must sit down at the same table and negotiate about their interests and views based on fundamentally different background knowledge. They should rely on a common wisdom, achieve a compromise of the different views. At this table, science is one of the partners, without the former privilege of being the utmost authority.

This is exactly the point, in which media convergence becomes indispensable. At the first level, because in these negotiations, scientists need to activate all kinds of persuasive argumentation. They have to present their data in very clear forms, have to use a non-technical language understood by all partners, they have to show reports, texts, voices pictures about sites, events or people concerned. They have to communicate with their colleagues who can provide additional information and arguments. This urgent necessity is the result of the negotiating situation with people whose culture, data, representation of the matter might be surprisingly strange and incomprehensible to the scientist. The communication situation of negotiation is different from scientific conferences, at which the scientists can communicate with their colleagues belonging to the same culture. Now they have to transfer their knowledge into a radically different conceptual framework from theirs. They have to accept that this framework might also be a working approximation. They must overcome their own reluctance otherwise they cannot represent their interest.

Convergent media gives a strong support to them. With pictures, videos, tape-recorded interviews, they can avoid using their technical language, abstract terms and theories that were useful devices for representing the authority of science but largely incomprehensible for nonscientists. At the round table of negotiations, scientists, and their partners have to be sometimes online for including colleagues into the discussions in conference conversations. They have to use mobile phones for sending and receiving short messages containing missing information, conversations for receiving tactical advises. Fixed and mobile technologies, Internet, and telephone should always be at hand.

Post-normal science, because of uncertainties and the urgency of decision in risky matters, lost a large part of the authority traditional science owned. Nevertheless, science must participate in the decisions. Through this negotiating position, science becomes an integral part of the democratic political system, it follows the principles of good governance, adapts itself to the institutional systems of the surrounding society, including business.[18]

## Conclusion

Telecommunication convergence produced an adequate media for an important area of science.

[17] The new strategy of involving the local interested lay community to research is called participatory action research. This research uses local knowledge in planning, observing, evaluating, and taking action and critical reflecting on acting. The actions have set goals related with workplaces, reducing the illiteracy of students, and many other things. This method is used mostly in social sciences. See Guy Bessette, *Involving the Community:A Guide to Participatory Development Communication.* Penang: Publisher Southbound, 2004.

[18] These remarks are based on the so-called stakeholder theory, first detailed by Robert E. Freeman in the context of corporate governments. The basic ideas of the stakeholder theory diffused to other contexts, including political science and ethics. According to this theory, as opposed to Milton Feedman's shareholder approach, corporations should include into their strategic decisions all parties that are potentially influenced by the decisions, besides the owners, managers and shareholders. ("Principle of Who or What Really Counts.") Robert E. Freeman, *Strategic Management: A stakeholder approach*. Boston: Pitman, 1984. I am grateful to Peter Hardi, professor of the Central European University, Budapest, for calling my attention to this theory and discussing some details.

Kuhnian revolutionary and normal sciences were adequately communicated to a lay audience through devices (books, lectures, movies, TV shows) separated from each other. They secured one way communication, presupposing the approximate validity of the deficit model. The popular knowledge they relayed seemed certain, simplistic, universal, authoritative and decontextualized. A large part of science popularization applies this pattern even now. They are part of the entertainment industry and they educate the lay audience. They present knowledge about fields belonging to human culture, such as the theory of evolution, astrophysics, theory of relativity and many important scientific or technological ideas.

In some fields of science, however, the communication situation is different. These fields and problems have been known for centuries but they have received decisive importance recently. Funtowicz and Ravetz characterized this change in this way: "Our technology and medicine together have made Nature predictable and in part controllable, and they have thereby enabled many people to enjoy a safer, more comfortable and pleasant life than was ever before imagined in our history. The obverse side of this achievement is that it may well be unsustainable, not merely in terms of equity, but even in terms of sheer survival. Much of the success of traditional science lay in its power to abstract from uncertainty in knowledge and values; this is shown in the dominant teaching tradition in science, which created a universe of unquestionable facts, presented dogmatically for assimilation by uncritical students."[19]

Post-normal science, as Funtowicz and Ravetz call it, should contribute to making decisions in matters with high risk. Its communication technological requirements are different from those of traditional science. In post-normal science, the investigated system is uncertain, and science lacks the reliable laboratory data and convincing theories. Under these conditions, science cannot apply the old-type popularization methods. The content of scientific knowledge becomes uncertain and complicated. The local cultural, business, political and civilian context influences the validity of the scientific statements and forces science to change its standpoint. Ethical, financial, religious issues should be considered. In these matters, science cannot claim the old towering authority of expertise. Post-normal science cannot be presented as simple, certain, and vivid. This is contextualized, complicated, uncertain, non-authoritative science operating in network with nonscientists.

The returning questions on the health risk of mobile telephones might be related to the post-normal character of the problem. The stakeholders include all the users, practically the whole population of Hungary or of any other country. The health risk of the transmitters and the individual phone sets may influence everybody. Business and, through taxation, politics have vested interest in increasing mobile phone usage. The great popularity of mobile phones proves that people prefer to use them in spite of the suspected risk. The right answer to the skeptical question concerning the health risk of the mobile phones is not that they do not make any health risk, rather that science have found neither reliable data nor well-founded theory suggesting danger, and the users decided to take the small risk originating in the uncertainty of the system

Convergent media is the adequate device for post-normal science in communication with lay people, its extended peer community. Science becomes one part of a network of negotiating parties. It does not declare the "truth" concerning post-normal subjects, such the health risk of mobile phones. Reporters and the lay audience cannot expect to receive the same kind of self-assured answers as they could in cases of normal sciences. In post-normal fields, scientists do not speak to a large silent audience, as the deficit model presumed, rather they negotiate, discuss, exchange ideas with an actively communicating lay audience in an interactive way. This can be done in a changed media space secured by converging telecommunications. If scientists complain about being neglected and underestimated, this is due to the features of their subject and social position, rather than to their bad communication. Telecommunications convergence serves this new science by structural features it shares with post-normal sciences.

[19] Funtowicz, Ravetz, ref. 15. 741.

**Alex Soojung-Kim Pang**

## *The End of Cyberspace and the Emerging Telecommunications Convergence*

In the 1980s and 1990s, cyberspace became real. The personal computer, graphical user interface, and Internet became a technological foundation for a new virtual world, a Platonic dimension of information separate from and superior to the real world. Cyberspace became a "metaphor we live by", to use George Lakoff's phrase. With the growth of mobile communications and computing, wireless connectivity, and RFID and geocoding systems, however, the experience of being online, and of interacting with digital information, is shifting decisively.

In this talk, I will outline some of the consequences of the end of cyberspace. I will show how cyberspace obscured certain important features of information. Cyberspace promised a world free of the limits of the material world, the constraints of geography, and the prejudices of social interactions; but in reality, information has a material life, and is interpreted in – and affected by – social and geographical context.

A new generation of information technologies, however, offers the possibility of creating devices that work with the materiality, geography, and sociability of information, rather than resisting it. This, in turn, has deep implications for our thinking about the future of convergence: how it will unfold, what it will mean for users, and how it will be experienced.

# Ábris Papp

# Autopictures

### The use of cellphone cameras and home videos in a Hungarian village

What can we achieve with pictures? Can we use the skilled way of taking shots to improve our situation in a social group, or in the village hierarchy? How can we be stigmatized, or terrorized by others, with a camera, used as a weapon? What is the villagers' concept of acts being worthy of recording, or what is being considered a public or private event?

Even though we have certain information regarding the culture of these pictures, we are still lacking the knowledge or the understanding the circumstances of the common use and the conditions of the daily embeddedness of these media forms in one's life management. Since there is no immanent interpretation available regarding the intentions of the author or the array of purposes these photos are aiming at. And if we want to develop a deeper empathy toward a situation when a person by simply pushing a button on a technical device projects some meaning to these fragmented elements of reality (Vilém Flusser) we have to become a part of the moment. We have to be present physically, we need to see, hear or sense the multitude of elements present at the moment of these shots are being taken in order to compare it to the actual represention of the whole, the self-awareness of the person as it appears in the facial expressions and the body language maybe in the verbal signalling of the photographer and lastly the reactions of the viewers. In order to conduct an assessment I used personal interviews, friendly discussions and participant observation as a technique. This topic has been followed in a village in Vas County, where I have privileged access to the standard narratives and more intimate structure or events of life hidden for the outsiders thanks to my family relations.

Kenyeri, the home of some 956 people, is located close to the river Rába, in the Small Plain. The monotony of landscape, dominated by agricultural fields and acacia groves, is broken only by the baroque styled church towers. The importance of agriculture has fallen since the late eighties, when the local (Tsz) productive co-operative provided work opportunities for 170 persons, and numerous inhabitants had supplementary income from their household farming plot. A good index of this regression could be the number of animals: in 1989 there were 500 livestock in the village, currently 90 cows are owned by a few farmers. Nowadays the Kenyeri citizens have to travel to nearby towns, to find low qualified jobs in multinational companies. The young generation does not have the job opportunities nor the will to stay in the village, they migrate to larger towns, or abroad. According to villagers this trend could even become more dominant in the future, if the primary school would be closed, and the communal places – such as the community centre – continue to loose their importance. So Kenyeri is facing the typical problems of most Hungarian villages. Actually 30 percent of Hungarians live in settlements, with a total population of less then 5000 people. Some rural sociologists argue the word 'village' is not suitable for describing the diverse locations, or way of life. The suburban village near Budapest could not be compared with the segregate eastern-Hungarian hamlet. The typical peasant culture has disappeared, the pattern of consumption, value preferences and electric media use is quite similar in towns and rural regions. But we should not neglect the disadvantaged social standing: half the people surviving under the minimum subsistence are village dwellers.

As a metropolitan sociologist I also perceive the gifts of countryside, after spending some weeks in Kenyeri. It was not only the rustic idyll - the tranquil dinners, I usually had on the veranda in a quiet and

unpolluted milieu, made of bio vegetables grown in the garden and delicious courtyard chicken - which truly impressed me, but the new scale of roles offered to me by the genius loci. I became the researcher whose questions and interest provided villagers with the opportunity to see themselves in a different way. According to Simmel, a stranger - whose presence in a homogenous community is transitory – can open new vistas thanks to his perspective, which is internal and external at the same time. New life strategies are represented by outsiders: the Dutch senior citizens sing Beatles songs to the local pub's audience, the reggae guitarist, who has left the city, nowadays performs his skateboard tricks to the young villagers, and a rich businessman from Budapest maintains the local football team. This way they have a chance to develop a much deeper sense of identity and nationality, experiencing alternatives experiences or welfare. From their point of view the segregated, village of low social status seems to be an island of peace, and the poor, workless villagers transform themselves into satisfied citizens, who just do not care about money. The emphasis is on detournement, the new meanings and narratives which influence attitudes, define acts. Tamáska explains how the old, rustic houses, which were sentenced to death by the residents, became very stylish and prestigious because some of this genre had been expertly renovated by urban families. I recon that the process - while new approaches emerge in a sphere, which have lost its original context ( agriculture) - has a great importance in the respect of rural development.

Certainly this is not the only way to transmit new lifestyles and management, but after I had observed the media consumption in Kenyeri, I found that the preferred programs - the news, soap operas and sporting events, - devoid of narratives about the village or rural way of life. The mass media can influence daily routine: calling somebody during the most popular series, is considered impolite. But the effect, what interactive tools produce on life habits is more considerable, as Piroska Szabó points out, even the use of telephones have fundamentally changed the cultural practices: from the use of rooms to the role of visits. In his sarcastic anti-utopia, Vilém Flusser describes the actual flow of pictures as a centralized, fascist method, and he set it against the telematic societies horizontally structured image sharing. This process - like MMS – is a dialogue which has lost its authority, - somebody takes a picture, another person animates it, or mixes it with music - a democratic conversation in which new information is born.

Above I have expressed the positive consequences of seeing ourselves through the eyes of someone else, from another point of view. It would be even more amazing to watch our projected thoughts, perceptions, on the screen so we can enjoy the world as we see it – in a familiar way. In the virtual context things of reality are transformed and they take on new meaning. Our friends seem to be the characters of an anime film, heroes of a jackass show. Our favourite pub turns into an elegant club, our Trabant becomes a limousine, because the quintessence of these things, as it appears on the cell phone camera, is the same. On a narrow display the happenings of our life are being transformed into a funny clip? These situations carry relevant messages, like little boats, stream in the global virtual river. The internet, the MMS, or simply the cell phone handed over creates the opportunity to take other people into our visual universe. Their reactions, critical statements and astonishments could reinforce someone's self concept.

I made personal interviews with the people, who use their home videos on a regular basis. I found that the use of these tools strengthens self-consciousness: if someone has experienced a way how general human gestures are perceived, he/she becomes capable projecting how other people experience it. This role makes the performers social prominence possible, and a new kind of participation in a situation, because the cameraman is liberated under some valid norms. For example in the case of a wedding ceremony, if you have a camera in your hands, like the eyes of the community, you can go along to the altar with the young couple, and see the vicar, and record all the events as they are taking place. Furthermore the photographers' toy empowers its owner, by controlling reality and through representing and assuring his/her standpoint. This activity can influence – without saying a word - the behaviour of more passive recorded persons, who want to control his/her representation. Posing, offering our face is similar to obliging our self perception to others. (Bourdieu) According to Goffman, if the photographer takes a

picture everybody requires the respective distance, the frontal perspective, and the will to record the persons ideal self-sate. So the cameraman must be an accepted person, this role could be earned by the good quality of formerly produced videos. He/she needs to be socially sensible, for finding the subject and what is thought to be in the interest of the community. The examination of taboos can outline what is the image – the legally represented reality. In Kenyeri, home videos have a stronger publicity – because of cable TV -, so the tolerance level is higher. Projecting erotic parts, or any situations, which make anyone feel uncomfortable, is forbidden. (The process of recording could not be controlled.)
The usual subjects of home videos are public events, taking place in communal places: such as first communions, marriages, football games, patronal festivals. During these events the activity, and the communal acknowledgement with their consequences are also visible. The persons are represented as successful members of the village community. The use of home videos strongly underlines the owner's identity, the cameraman senses him/herself as a person beyond the average. The individual defines him/herself in relation to the group.

On the contrary to this, the research of image making with cell phone cameras resulted the following conclusion: the group becomes embodied in the individual. I have examined the use of cell phone camera: the situation of image taking and sharing, the meanings assigned to these shots, the grammatical rules of visual writing. The reported persons were a group of Kenyeri juveniles, between the age of 14 and 21. The community – which has 13 members, including 3 girls – grew up with the local football team. The locus of the social situation is usually the Golden Dear Tavern, where the owner doesn't care about underage, and serves alcohol to the buddies. This is a friendly place, regular customers do not make any effort to control the young generation, who could enjoy the shady tables in the pub's garden, or in the cold season, the intimacy of the small private room. The Friday evening rates offer a great feast, the fraternity reunions after a week in college, a time for chatting and having a few drinks together. "*We drink, somebody acts funnily, and it's cool to watch it again the following day."* The use of illegal drugs appears on the screen as the symbol of confidential togetherness. The common sin makes the kids accessories.
In connection with taboos, I should note that the members of this group also mentioned the negative possibilities the use of cell phone camera: *"We are fair enough to not record any hostility. We don't record if somebody runs down the other behind his back, for showing the video to the victim."* The words tend to separate while the images connect us, and this fact could have bad consequences. I think of the society's shackles, but they don't let the common control place too much pressure on them.

From 13 persons, ten own cell phones equipped with camera. The preferred brand is Sonny-Ericsson, with some of the most important features of good design and significant memory that allows to record and to preserve the videos. Not every beholder uses the video function: those who have a technical affinity – usually the boys – have a greater chance to discover their camera. But after that, as one of them says: *"It's not a big challenge to handle it successfully; you only have to keep on the light effects."* I think that the necessary condition of making popular videos is the social ability. (What is interesting, to whom, and how to serve it.) There are three older boys who often make videos, and collaterally they earned more respect in the group. Can we improve our range in the social hierarchy with these pictures, or as a recognized person, could we effectively persuade other people to give their face to our camera? This process looks like a game, where the cameraman wants to take a shot of us, and we should prevent this, by applying our skills, or social power, with what we can influence the photographer not to record us, but those who are in a subordinate position. We can make him/her delete the compromised video, or in a brave fashion, we can terminate it by ourselves, when the phone is passed to us.

The level of self-monitoring is lower in the case of mobile phone cameras, because the mobile videos are shorter, they are considered less durable than home videos. (They think that the tangible - not virtual - data recordings, like cassettes or photos are longer lasting. In a case of an important event – as I have mentioned above – they prefer these formats.) It's easier to cover the cell phone cam, so we have a greater chance to produce spontaneous pictures, which show characters as models of reality, and not of their own

intentions. (Goffman)

In their pocket the youngsters take the signs of their attitude to the circle of friends, their relation to their position in group everywhere. With these pictures they can represent not only their membership, but the sunniest side of their public presence. No one thinks the videos represent him/herself as a subordinate or deviant person. The collective watching of these videos, the possession of the better pieces of equipment, and the joy of looking at others' pictures, represent the surrounding world which strengthens the community.

In my lecture I'm going to present and analyze the moving pictures, offered to me by the Kenyeri youth.

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# Convergence and Saturation:
# Ecologies of artefacts in mobile and ubiquitous interaction

## Introduction

Analyzing key-concepts which assume a crucial role in public discourse and policy strategies – with no doubt 'convergence' belongs to this category – means to explore how stories and paths of sociotechnical assets develop, at both material and symbolic level.
In this contribution, I intend to focus on some peculiar dimensions of convergence, to pursue the attempt of mapping the concept drawing a 'grid' of broader trends and phenomena. I will try to provide a tentative interpretation of this 'buzzword' through the diverse manifestations of its pervasivity and 'omnipresence'.
The paper situates 'convergence' in the context of a conceptual grid based on four key-words: saturation, hybridity, mobility and ubiquity. These concepts allow to understand the continuous texture between bodies and environments which are more and more saturated with multiple technological arrays. Such arrays are hybrid as they constantly mingle the human and the non human. Furthermore, they emerge from a constant tension between old and new media.
The conceptual grid will be 'applied' to the case of mobile phone and ubiquitous technologies at large, considered as ecologies of old and new artefacts able to support, foster and transform social interaction in the direction of an increasing mobility and ubiquity.
The ecology metaphor, rather than concentrating on an individual artefact, frames the systemic, co-evolutive and diverse character of information and telecommunication infrastructures, as well as the constant integration/substitution between new and old devices.
This framework constitutes the first stage of analysis of an ongoing research on mobile work, which will focus on the case of consultants in international organizations as peculiar typology of mobile workers.
The paper is organized as follows. The first paragraph analyzes the multiple meanings of convergence as contemporary buzzword. The second paragraph tries to draw a conceptual map of convergence through 'affiliated' concepts. The third and last paragraph focuses on ecologies of artefacts as metaphor apt to describe the contradictory and complex dimensions of convergent environments.

## 1. Mapping convergence: multiple profiles of a multi-faceted concept

Convergence is said to be the turning point of contemporary technology revolution, the main characteristic of future markets and technological infrastructures, the strategy to pursue to be successful in challenging the innovation frontier. But what is convergence about?
The Oxford dictionary says it is "the process by which originally distinct technologies may become more compatible or integrated as they develop, so that an increasing number of devices (especially in electronics, computing, and telecommunications) are multifunctional and interoperable" (www.oed.com, draft additions 2003). In this respect, convergence goes back to multimedia as "the incorporation of a number of media, such as text, audio, video, and animation, especially interactively" (www.oed.com). But the first of the meaning listed, beside the 'technological' one quoted above, says that convergence is "the action or fact of converging; movement directed toward or terminating in the same point (called the *point of convergence*)"

(www.oed.com, original emphasis). Whereas 'convergent' means "inclining toward each other, or toward a common point of meeting; tending to meet in a point or focus" (www.oed.com). All of these meanings associated with the word convergence draw a map where the sense of commonality, uniformity, consensus, integration, homogeneity prevail.
However, I argue this 'original' set of meaning in the 'convergence map' needs to be extended to take into account the mutiplicity of convergence as a concept.
When putting the adjective 'technological' by the word 'convergence, we start referring to different things, often disappearing in the word itself considered as a singularity instead of a multiplicity.
In fact, "technological convergence is the modern presence of a vast array of different types of technology to perform very similar tasks. The term convergence is commonly used in reference to the synergistic combination of voice (…), data (…) and video onto a single network. (….) Also included in this topic is the basis of computer networks, wherein many different operating systems are able to communicate via different protocols (www.wikipedia.org). From such a definition a double (at least) profile of convergence emerges: convergence of channels/media of communication; convergence of networks.
To the purposes of this paper, I distinguish the following types of convergence:

- an *infrastructural*, *architectural* and *market* convergence, "understood, in a broader sense, as the progressive blurring of the traditional boundaries between previously separated fixed and mobile markets which is led by the continuous technological developments, (…) known as NGNs (Next Generation Networks" (Feijoo et al., 2006: 3). In such a process, big emphasis is put on the 'mobile broadband access' as the next frontier in telecommunications infrastructure, along with "the evolution of mobile Internet as a converging process of access platforms, technologies, contents and services" (Ramos et al., 2004: 76). The convergence between mobility and the Internet also means a restructuration of the division of labour between voice and data providers, mobile and IT industries, with transitions and overlaps in between (cf. Steinbock, 2005).
- a *material* convergence which has to do with miniaturization and portability of multifunctional mobile technological artefacts (e.g. I-pod, PDAs, and so on). At this level, materiality and visibility of technology are increasingly redefined. Not only the mobile phone becomes more and more 'concentrated' with functions and services in a very tiny, smarter and smarter device (e.g. I-Phone), but also the global environment does, increasingly textured and embedded with pervasive, unobtrusive, ubiquitous technologies (cf. Lyyttinen and Yoo, 2002; Greenfield, 2006). Such a profile is mirrored in the designers' discourse and practice, which defines mobile and ubiquitous computing as the next frontier in technological development;
- a *functional* convergence, concerning versatility and multi-functionality of convergent artefacts, whose archetype is, again, the mobile phone as "the ideal gadget for amalgamating a great part of the uses that characterize the Information Society, transforming it into a meta-device" (Aguado and Martinez, 2006a: 2). The I-phone is the most recent and notable example of this profile of convergence, not only as a multi-purpose device but also as a current icon of public discourse on technological convergence. Functional convergence also means old communicational routines can be performed through new media (cf. par. 3).

## 2. Towards a philosophy of convergence: A conceptual grid

Infrastructural, material and functional convergence can be situated in a broader grid which makes convergence a key-aspect of contemporary technoscapes and mediascapes (Appadurai, 1996).
Such a grid is circumscribed by four key-words working as 'affiliated concepts' to convergence, that means saturation, hybridity, mobility and ubiquity.

### *Convergence/saturation*

Saturation ca be defined as a 'gigantic web of interoperability'. As Bowker and Star put it in their study of classification and standards (Bowker and Star, 2000), "classification and schemes literally saturate our environment (…) This categorical saturation furthermore forms a complex web. Although it is possible to pull out a single classification scheme or standard for reference purposes, in reality none of them stand alone" (Bowker and Star, 2000: 37-38). The texture of saturation is "a matter of integration, almost like a gigantic web of interoperability" (*ibidem*), therefore difficult to grasp in its patterns.

Interoperability goes back to the Oxford's definition of convergence (see par. 1), but also to the centrality of invisible and resilient infrastructures, especially in ubiquitous computing environments, expected to colonize everyday life surfaces (Greenfield, 2006). Here the 'interoperability' and the disappearance of the infrastructure reach the highest level possible, complementing the mobile phone saturation and ubiquity which makes this technology accessible everywhere every time.

*Convergence/hybridity*

Interoperability and saturation make technological devices, networks and media closer to each other. In this respect, as they become closer, differences and boundaries between them go in the background; hybridity, mixture, mingling of the human and the non-human, as well as the continuous texture between a mediated body and an environment saturated with technologies, play a major role on the scene. Convergence, in this way, becomes a perfect icon of hybridity and collage as 'preferred words to characterize qualities of people and their products" (Hannerz, 2002).

*Convergence/mobility*

As result of a process or action based on movement towards a common point , convergence is inextricably intertwined with mobility. Mobility can be conceived of as 'relational concept', not understandable without its opposite, that means immobility (Adey, 2006). It also constitutes an evocative keyword and a powerful discourse at the core of contemporary societies where flux, mobility and hybridation configure themselves as core social dimensions of a new paradigm (Sheller and Urry, 2006)
Media history offers various examples of how convergence and mobility go hand in hand, through a constant 'identity crisis and re-birth' of technologies. The mobile phone, with its 'identity on the move' (Fortunati, 2001) is not an exception in this sense. The distinction between fixed and mobile technologies is more and more blurred because of the patterns of use, which comprise both mobility and stability.

*Convergence/ubiquity*

Ubiquity evokes a desire as ancient as humanness: 'being anywhere anytime' as opposed to the *hic et nunc* constraints of face-to-face interaction. The mobile phone, again, is an example of such a ubiquity because of the constant availability it makes possible. The tension toward reaching a virtual, potential omnipresence is supported by convergent artefacts, which make ubiquity more at hand than ever. Being here and there, performing multiple tasks at the same time, distributing our attention to different media, communication partners and communicational routines, is an everyday experience for an increasing number of people. As a consequence, it is more urgent than ever to "investigate not only physical and immediate presence, but also the socialities involved in occasional co-presence, imagined co-presence and virtual co-presence" (Urry, 2002).

## 3. Ecologies of artefacts, innovation and routine: diversity and contradictions in convergent environments

Media history shows how each time a new medium appears on the scene, it is shaped through dreams and fears of substitution, but more often it integrates with older media already socially appropriated. New communication technologies are "always introduced into a pattern of tension created by the co-existence of old and new, which is far richer than any single medium that becomes a focus of interest because it is novel" (Marvin, cit. in Nyiri, 2005). This has to do with convergence, in the way the movement towards a same point does not imply to make previous things which converge disappear from the scene.
In this respect, it is illuminating to think of information and technological artefacts as ecologies.
Ecology as a metaphor can be characterized through five elements: system, diversity, coevolution, keystone species, locality (Nardi and O'Day, 1999). Introducing ecology as complex concept coming from biology runs the risk, if used too strictly, to re-call technological determinism. However, following scholars who have preferred the ecology metaphor to others (e.g. tool, text or system, Nardi and O'Day, 1999), I want to use it in a loosely-bounded perspective. Therefore, three of the five elements appear to be crucial: diversity, co-evolution and locality.

Diversity means convergence is not just concentration and integration, but also distribution and variety across markets, contexts and artefacts. This implies that contradictions emerge in convergent environments. Old media are tied together in new artefacts and so are communicational practices and routines. But this co-exist with resistance and persistence of old ways of interacting and communicating. Not everything converges, and not to the same point. It can happen a new device (the mobile phone) revives primordial, un-alienated forms of communication (Nyiri, 2005), entering in a dialectic relationship with other types of mediated communication.
Co-evolution means, among other things, to ask ourselves a crucial question: if we do not look anymore at single, individual artefacts but at systems of them, what are the consequences in terms of domestication and appropriation?
As for locality, the ecology metaphor ties together the past, the present and the future, that means the temporal dimension in technological trajectories, which is also important to situate convergence in a historical perspective. In fact, converging technologies are built up through sociotechnical processes which have a history in the way the old always acts as a model to follow/avoid with reference to the new (*backward look*); they show a mixture of integration and substitution between the old and the new (*current practice*); they envisage the future through widespread discursive frames which attempt to attach a new favourite social order to a specific technology, trying to identify multiple points of convergence (*forward look*).

## Conclusion

This contribution has tried to argue that even if convergence means originally to go towards a common point or focus, it is indeed a multiple and multi-faceted concept, which can be referred to different profiles of technology (e.g. media, networks, infrastructures, communicational functions and routines). Furthermore, it can be framed through concurrent concepts which circumscribe limits and potentials of convergence as phenomenon emerging from the encounter of saturating, hybrid, mobile and ubiquitous technologies. Such an encounter questions forms of interaction and communication (e.g., what is co-presence and how can we make sense of hybrid modalities of interaction carried through convergent media?).
Convergence means not only integration, combination and uniformity. Through the ecology of artefacts metaphor, I have tried to show how convergence is inextricably ambivalent, linked with distribution and diversity, even contradictory as it mixes and blurs boundaries between the old and the new. Even if multifunctionality and miniaturization, functional and material convergence are expected to make things simpler, a closer look at the conceptual constitution of convergence points out hybridity, diversity and innovation co-exist with routine, uniformity and repetition.
Convergence is a continuous oscillation between different poles, where concentration and integration are balanced through diversity and distribution of artefacts, practices and sociotechnical arrays.

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# SPATIAL NAVIGATION WITHIN HYPERTEXT SYSTEMS

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Navigation is the activity by which a user can build a mental representation of the content and the formal structure of hypertext information sites. According to the existing literature, disorientation and cognitive overload seem to be the most fundamental difficulties which the users undergo during the navigation. Those phenomena, the multiple levels of treatment and the embedment of the activity into spatial metaphors, nourish the assumption that hypertext exploration involves cognitive competencies similar to those necessary for orientation in the physical environment, and that the user elaborates a cognitive map of hypertext structure. In the series of experiments reported here we show how the theories and the empirical results on spatial cognition, comprehension of language, spatial texts and metaphors support the theory on the implication of the cognitive task of route search during hypertext navigation.

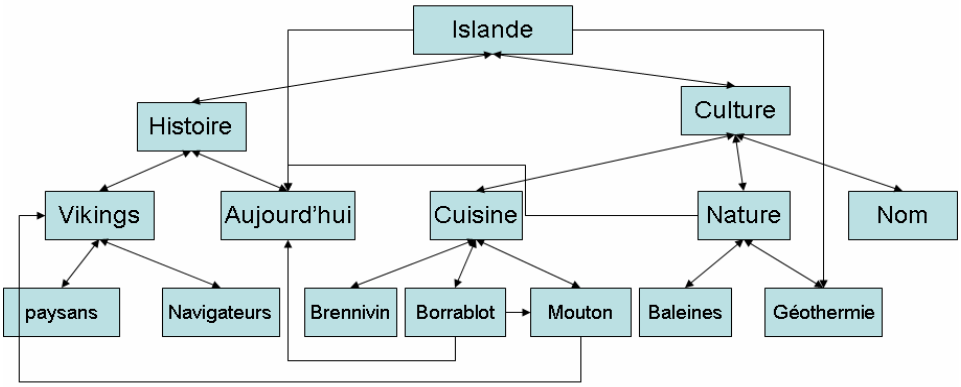
Four different experiments were performed, three of which are summarized here at the University of Poitier as part of the research project on the psychology of the internet there, and as part of the dissertation work of Zsófia Vörös. The general methodology of the studies started from three basic ideas:

a. Navigation over hypertexts is a virtual navigation, that at the same time results in mental representations such as cognitive maps similar or even isomorphic to representation of real world events.
b. At the same time, the peculiarity of this navigation lies in the fact that the user has or can construct simultaneous logical and spatial structures from the basis of temporally distributed navigation.
c. The characteristic of this postulated emerging mental representation can be revealed by indirect methods, relying on individual differences and on dual task arrangements.

EXPERIMENT I: THE INFLUENCE OF INDIVIDUAL DIFFERENCES ON HYPERTEXT RECONSTRUCTION

A site on Iceland

Underlying structure of the site (this was used in experiment III as a visual aid).



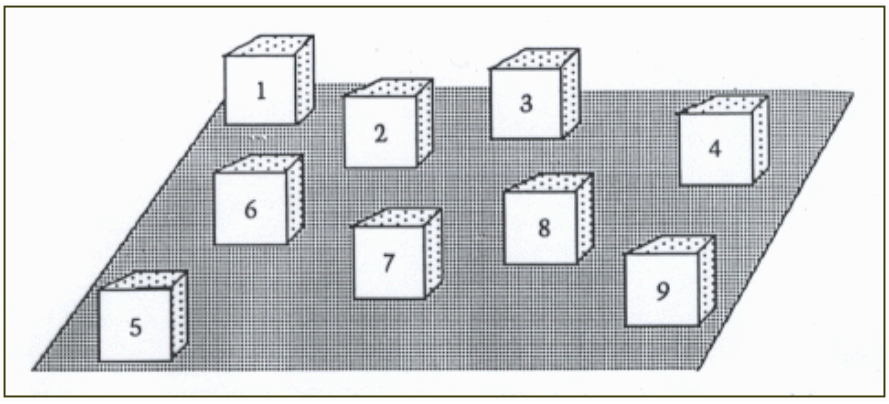

*Hypothesis tested*

Working memory proved to a crucial mediator of individual differences in explaining processing and acquisition e.g. of new word forms, artificial grammars and the like.

Do people with higher working memory span infer the underlying structure of knowledge implied easier and more correctly?

*Individual difference measures*

a. digit span 2 4 5 6 8 2 1 3 4 5 9
b. Corsi visual span



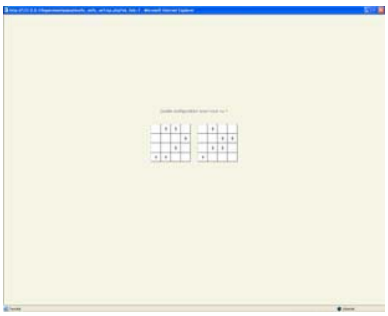
| Dependent variables | Significant regression | $R^2$ |
|---|---|---|
| pages, correctly placed pages | Corsi span | 37 % |
| pages, correct,hierarchy | Corsi + number | 38 % |
| Configuration | Corsi | 32 % |

*Interpretation:* Though there is an initial double representation, visual sketchpad is more crucial for reconstruction.

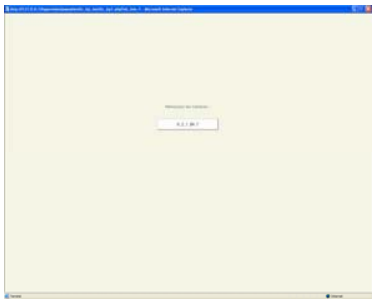
EXPERIMENT II: DUAL TASK ARRANGEMNT: THE IMPACT OF VERBAL AND VISUAL CONCCURRENT TASKS

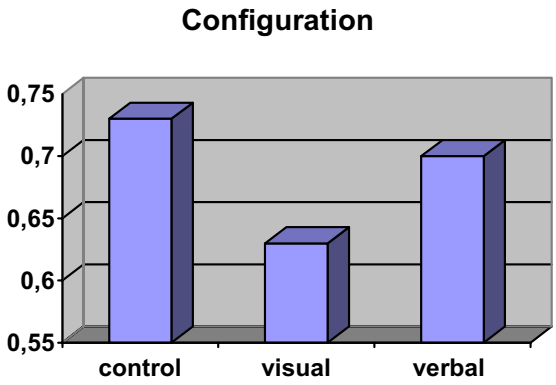
The subjects have to memorize a configuration, or numbers, and remember them during navigation

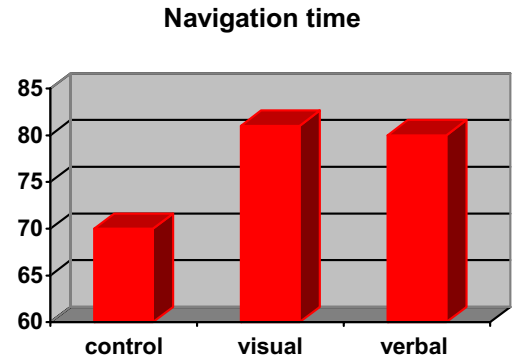
1. *Visual task: memorization of placements*



2. *Verbal task: memorization of numbers*

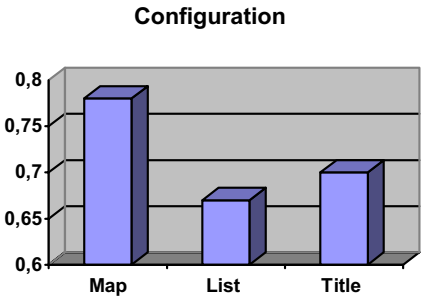





*Interpretation*: both verbal and visual concurrent task impede coding. However, representation is only inhibited by the visual task.

EXPERIMENT III: THE EFFECT OF ADVANCE ORGANIZERS
Three conditions: map, list, or title as advanced organizers.




*Interpretation*: the structured visual help is most efficient.

GENERAL CONCLUSIONS

Our data based on individual differences, concurrent tasks and advanced organizers support the hypothesis that in hypertext processing information pick up is a combined verbal-visual task, in line with dual coding models like that of Paivio. However, representation seems to be dominantly visual in its organizational aspects.

# Innovative pedagogical and psychological perspectives of podcasts

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*Abstract:* Podcasting, being a new form of audio distribution offering the possibility to be loaded on personal mobile devices from teachers', student', university's websites and blogs, is discussed as an activity with potential in learning and teaching. The existing and potential varieties of podcasts represent sources for learning, converging, socializing. In this paper, podcasting is supported as an innovative approach to stimulate university students' reflection, specifically on epistemic questions and concepts. Both theoretical and practical background information is provided to clarify the rationale of using this method in higher education.

## 1. Podcasts and Podcasting: An introduction

A podcast is defined as a digital media file or series of such files that is distributed over the Internet using syndication feeds for playback on portable media players and personal computers (Wikipedia, 2007). Exemplary for podcast is its form of distribution, its ease of use and creation and the wide-scale, ubiquitous access to it. Podcasts allow asynchronous transfer of information, meaning the audience has remote access to them.

Podcasts are an alternative way to deliver information and for entertaining[1]. Podcasts and podcasting are favoured by the increasing number of Mp3 players[2] and the available free software and Internet tools for podcasting. Educators are facing the massive invasion of these digital devices in the classroom and are searching for meaningful ways to use them to enrich learning, rather than just reproduce old methodologies with a new generation of technology (Coghlan, 2007).

## 2. Pedagogical and psychological perspectives of the educational use of podcasts

### *2.1 Audio in education*

Audio has been used in education for many years and its benefits for distance and face-to-face learning are well studied. A range of studies conclude that audiotapes, used for feed-back, bring a more positive experience to learners, than written feed-back (Carson & McTansey, 1978; Kirschner, van den Brink & Meester, 1991; Logan, Logan Fuller & Deneby, 1976). Tutor-initiated audio embedded into email messages yielded increased student participation in group activities, and added a sense of online community and satisfaction with the overall learning experience (Woods & Keeler, 2001).

Similarities exist between audio cassettes and podcasts (aside the distribution form), such as the freedom they give to the listener (i.e., the learner) to listen and execute activities in parallel to other learning activities, to listen anytime s/he wants and to have control over the record/playback hardware. Both are easy to produce and distribute, advantages are even more prominent for the podcasts. All of the pedagogical and control advantages, identified in the studies on audio cassettes, are applicable for podcasts.

The question is, what are the real effect of podcasts on learning, above the primarily enthusiasm?

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[1] CNN Podcast directory: http://www.podcastingnews.com/forum/links.php?id=508 ; BBC Podcast : http://bbc.podcast.com/

[2] In 2006, a marketing research in the USA shows that one of five Americans aged over 12 owns an Mp3 player. The British Market Research Bureau revealed that 32 per cent of UK adults owned an Mp3 player; where 69 per cent - amongst the 16 – 24 age group. Nineteen per cent of the UK internet users (i.e., 73% of the adult population) downloaded a podcast during Sept 2006 – Feb 2007. About 4 million UK adults in 2007 use their phones as Mp3 players (cited in Edirisingha and al., 2007).

*2.2. Current and potential uses of podcasts in education*

In the context of higher education there are two categories of podcasters[3] - the instructors and the students. Predominantly, podcasts are created by instructors (Deal, 2007). Here we propose a summary of current and potential uses of podcasts.

1. Lecture delivery- lectures and guest lectures.
2. Feedback- as a form of evaluation/assessment of students' work.
3. Additional materials- either supplementary (purely additional) or complementary (making up for something that is missing) to the basic learning materials such as interviews, speeches, preparatory materials, music or other audio recordings to augment written text, class discussions and conversations, instructions, courses summaries, reminders.
4. Specific learning practice and needs- as necessary learning materials that cannot be presented in another way as in heart sounds in medicine (Barrett et al., 2004) or phonetics assistance for auditory learners.
5. Assignments- created by the students as a response to a given task.
6. Creative activities- would be all activities with a learning objective, in which students are creating content on their own, e.g. pieces of theater or music.

Podcasts can have a variety of uses, but all of them should serve a pedagogical objective or require a dedicated pedagogy. Yet the effectiveness of all these approaches is not studied. At this moment, the most popular use of podcasts in higher education - the lecture recording - has the support of students who believe listening to recorded lectures has a positive effect on examination grades (Brittain et al., 2006), although there is not much evidence showing actual effects on learning outcomes. An English language podcasts experiment gathered valuable results on the effect of the latter on the transfer of tacit knowledge and experience though peer's discussions (Edirisingha et al., 2007).

These and other studies lead to few conclusions:

1. Podcasts are more often listened to by students on their laptops than on their iPods or Mp3 players (Edirisingha P., Rizzi C., et al., 2007, Deal A., 2007). Thus, students listen to recorded lectures rather in a traditional way to prepare their classes.
2. Podcasts are a new technology for the majority of instructors and students. The enthusiasm for their use competes with the insufficient technical skills and it is a challenge to effectively get started with podcasting for educational purposes.
3. The design of the podcast (duration, amount of information, presentation) has a great impact on the learning. Shorter but focused podcasts are more appreciated by students (Edirisingha, Salmon & Fothergill, 2006) than long ones.
4. Podcasts can motivate for learning, help organize time and activities, support independent and online learning, cause a deeper engagement and understanding of the material to learn (Edirisingha, Salmon & Fothergill, 2006). To reach these results, the podcast should though integrated into concrete learning activities and serve to fulfill a concrete learning objective.
5. Podcasts should not be singular events, but should be reiterative, such as episodes, in order to engage students into the learning and the information conveyed
6. The pedagogical approaches should place the learner in the center of the learning activity. Research shows that students have a positive experience in an informal learning setting, such as while listening to peer discussions (Edirisingha, Rizzi et al, 2007).

In the perspective of the above conclusions, our research will attempt to test a pedagogically innovative way of using podcasts to enhance learning and reflection.

[3] Podcaster identifies both the creator and the listener of podcasts. Here we use this term to identify the podcasts' creator.

*2.3. Priming students' metacognition*

Stimulating students to reflect on what they are studying and what they learn, in other words- involving them in metacognitive activities, is a factor that can help make them successful learners (Borkowski, Carr, & Pressley, 1987). From a psychological perspective, metacognition refers to higher order thinking which involves active control over the cognitive processes engaged in learning and reasoning. According to Winn and Snyder (1998), metacognition consists of two basic processes occurring simultaneously: monitoring progress while learning and making changes and adapting strategies if the progress is not seen as sufficient. From a pedagogical perspective, these cognitive processes can be stimulated through meaningful activities, such, for instance, questioning or discussions.

Flavell (1979) conceptualized metacognition as "knowledge and cognition about cognitive phenomena". To understand the cognitive phenomena, Piaget (1985) suggests that new information is shaped to fit with the learner's existing knowledge (i.e., assimilation), and existing knowledge is itself modified to accommodate the new information (i.e., accommodation). Assimilation assumes that people tend to apply any mental structure that is available to assimilate a new event, and they will actively seek to use a newly acquired structure. Accommodation occurs when existing schemas or operations must be modified to account for a new experience. These concepts as are best defined as assimilation being schema usage and accommodation as schema change (Anderson, 1977).

Our hypothesis is that supporting learning activities with *primer podcasts posing epistemic questions* (i.e., tasks or questions that give rise to epistemic activities (Ohlsson, 1996) would affect at their schema change level and would thus bring them to deeper understanding and reflection on what they learn. These tasks help the learner to achieve "the ability to identify and use different ways of knowing, to understand their different forms of expression and evaluation, and to take the perspective of others who are operating within a different epistemic framework" (Morrison & Collins, 1996, p.109). These types of tasks (task classes) are archetypical for what Honebein (1996) calls "pedagogical goals" of constructivist learning environments, namely knowledge construction, appreciation of multiple perspectives, relevant contexts, ownership of the learning process, social experience, use of multiple representations, and self-consciousness / reflection.

The presumption of primer podcast' effect is based on the impact of adjunct questions on learning and retention. Researches on adjunct prequestions (i.e., questions posed prior to reading a piece of text) and postquestions (i.e., questions posed after reading a piece of text) show positive effect on directing the attention of students while reading a text and on stimulating certain types of learning (Bull, 1973). It was found that test-like questions presented before or after a material to be learned, indeed lead to learning (mathemagenic, Rothkopf, 1970). Although the scope of most of the research carried out was geared towards retention and short-term performance (Faw & Waller, 1976; Rothkopf & Billington, 1974), and not on reflection (which should lead to deeper learning and metacognition), and did no concentrated on learning from audio, there are meaningful conclusions which could serve the present research purpose. As summarized by Faw and Waller (1976), reliable results say that while adding prequestions and postquestions to textual materials both facilitate intentional learning (i.e., learning of content directly related to the question posed), only the use of postquestions facilitates incidental learning (i.e., learning of content not directly related to the question posed). Some authors state that different types of adjunct questions would influence the level of encoding presented materials (Anderson, 1972), or that under appropriate conditions, types of question would influence the nature of the memory representation formed in semantic memory (Andre, 1979). An experiment of Cunningham (1982) shows that in concrete and abstract prose learning verbal adjunct aids work better than visual aids, which, instead, could be somewhat disruptive.

## 3. Conclusion and future work

Basing on the conclusions from the above sections, we assume that effective usages of podcasts should have an appropriate design and take into account cognitive psychological approaches, as well as students' learning profiles. Our intention is to investigate how primer podcasts can affect metacognitive processes, by elaborating and testing a design of podcast with epistemic questions. The empirical research will use a

time-series method (as a particular design of a quasi experimental research), involving four groups of students. These would be the experimental group, provided with a primer podcasts, control groups 1 and 2, which would receive redundant information (in oral and written form), and a control group 3, not provided with extra information on the course. The experiment would have three phases, validating the design and pedagogical scenario and gathering answers to the research questions.
Given the state-of-the art of actual research on podcasting in education, research-based pedagogical models are needed in supporting and enhancing students' motivation and learning through podcasting. In this perspective, it is necessary to pursue psychologically and pedagogically innovative and valuable podcasts experiences.

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# Personality and the Mobile Phone. Character-based differences of usage and attitudes towards mobile communication

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„The mobile phone - your personality in your pocket."
www.itwales.com

Quotations relating to personality and mobile phones can often be found in advertisements of service providers or distributors of end devices. Normally, features for personalizing the mobile phone are meant, for example ring tones, logos or faceplates. But what exactly is meant by personality in relation to mobile phone use?

When we take a look at the current state of research, we can see that a lot of work has already been done on the use of mobile phones and how mobile communication is evaluated by its users. A whole range of aspects has been taken into account: From the changes in our individual everyday life to the rearrangement of our society due to mobile availability. The impact of the mobile phone has been studied in various social relationships: family (and especially children and youth), colleagues at work and friendships (for an overview see Geser, 2005; Haddon, 2004; Katz & Aakhus, 2002; Ling, 2004).

Those changes in individual life and in society are highlighted by two import topics: Firstly, a lot of studies focus on the coordination of our lives (for example on „micro-coordination" and „hyper-coordination", Ling & Yttri, 2002). It is even discussed that the flexibility and mobility in our lives due to the mobile phone have lead to a change in how people experience space and time: new patterns of coordination and social networks occur (compare Ling & Campbell, in press).

The second topic is the use of mobile telephony in public places. Because of the possibility to make calls everywhere, a private part of our life takes place in public space. This results in an incongruity between our physical presence in public and our occupation like a private call (Fortunati, 2002; Lasen, 2003; Murtagh, 2002). Meanwhile, there even is some kind of etiquette of when and how to make mobile calls in public (Ling, 1998; Murtagh 2002). Mobile phone use in public concerns users of mobile phones as well as bystanders witnessing the communication. For both parties, the use of the mobile phone in public leads to certain perceptions, attitudes, motives, emotions and behaviour patterns. They can be observed in certain strategies to manage the call when being at the same time engaged with another person face-to-face, emotional reactions and behaviour patterns like additional occupations (for more detail compare Cumiskey, 2005; Höflich & Gebhardt, 2005; Humphreys, 2005; Katz & Aakhus, 2002; Lasen 2003; Ling, 2004).

Interestingly, research on the influence of individual characteristics on the use of mobile phones is still at the beginning (Love & Kewley, 2005). According to Carver and Scheier (1996), personality has a causal effect in helping to determine how a person relates him- or herself to the world. It is manifested in behaviours, attitudes and emotions. Thus it can explain different exposures to mobile phone use and its evaluation. Particularly the *Big-Five-Modell* of Personality is relevant for research. It postulates five central dimensions of personality: *Extraversion*, *Social Agreeableness*, *Conscientiousness*, *Emotional Instability* (or *Neuroticism*) and *Openness to Experience*. In several studies, the influence of personality traits on the use and evaluation of mobile phone communication could be detected.

For example, problem mobile phone use (like calling without a headset while driving a car) could be associated with Extraversion and Neuroticism (Bianchi, 2005). Some research also hints to a correlation between Extraversion and SMS use, meaning that introverted people prefer SMS to voice telephony for communication, whereas other studies failed to verify the effect (Raess, Kiener & Schneider, 2002; Reid & Reid, 2004). Furthermore, an influence of Extraversion and Neuroticism on the perception and evaluation of mobile phone use in the presence of bystanders was discovered. Extraverts tend to listen to the conversation, whereas introverts feel rather embarrassed by having to witness a private talk (Love & Perry, 2004). Further, introverts seem to feel more uncomfortable as bystanders than extroverts do, and neurotic individuals seem to have more problems making calls in the presenece of unknown bystanders than more stable people do (Love & Kewley, 2005).

The mentioned studies examined the influence of isolated personality traits. However, this approach fails to take into account a very important aspect: Personality characteristics never exist independently from each other, but are organized in certain configurations within the person. In several studies, three main prototypes of personality have been proposed: *Resilient*, *Overcontrolled* und *Undercontrolled*. According to Herzberg and Roth (2006), Resilients generally show a well-adjusted profile with low Neuroticism and at least intermediate scores on the other four dimensions. Overcontrollers tend to show high Neuroticism and low Extraversion, and Undercontrollers have low Conscientousness and Agreeableness.

Due to the shown desiderata in current research, the aim of this study was to explore the reciprocal effects of personality prototypes, mobile phone behaviour patterns and attitudes towards mobile phone use. As it was exploratory, instead of hypotheses, the following research question was formulated:

Are there any reciprocal effects between personality prototypes and mobile phone use and its evaluation? What are those reciprocal effects concerned with?

## Method

To answer our research question, a survey on personality and mobile phone use was conducted at the Ilmenau University of Technology in October 2006, using the measures described in the following paragraph.

### *Measures*

After researching relevant literature in regard to theories and conducted studies, a questionnaire was developed. It was structured into three sections: In addition to demographic data, firstly mobile phone use statistics (like the possession of mobile phones, frequency of use, costs and applied services and applications) were enquired. The following section dealt with attitudes towards mobile phones (ranging from concern on radiation to the purpose the mobile phone fulfils) and mobile phone behaviour patterns (like strategies to manage availability, or reactions to mobile phone use in public). Thereby, the questionnaire addressed the aspects of micro- and hyper-coordination and public phone use described in the literature review. Thirdly, the dimensions of the Five-Factor Model were assessed using the German NEO-FFI questionnaire (Borkenau & Ostendorf, 1993), with internal reliabilities ranging from 0.58 to 0.75. The questionnaire ended with items for sociodemographical data.

### *Sample*

All subjects were undergraduate students. Convenience sampling was used in various lectures of media and communication science, where subjects were asked to volunteer. This resulted in a sample of $N = 245$. Responses from subjects who did not possess a mobile phone and who had more than 10 missing data were excluded, thus leading to a final sample of $N = 211$ subjects. The participants were aged between 18 and 32 years ($M = 21.64$, $SD = 2.20$), 94 participants were male, 117 were female.

### *Derivation of the Prototypes*

Four personality prototypes were derived by applying a clustering procedure proposed by Asendorpf, Borkenau, Ostendorf and van Aken (2001) and validated reaching a *Cohen's* $\kappa = 0.60$.

## Results

### *Description of the Prototypes*

Two of the four detected clusters could be matched to prototypes from representative studies: *Resilients* and *Overcontrollers*. The other two clusters resembled the *Undercontrolled* and the *Reserved* prototype (compare Herzberg & Roth; 2006), but not enough to justifiy classification. The *Resilent* cluster ($n = 53$) was characterized by a low score on *Neuroticism*, high scores on *Extraversion*, *Openness to Experience* and *Agreeableness* and a slightly positive score on *Conscientiousness*. It represents a personality prototype of people who are emotionally stable, outgoing, relaxed, self-confident and get along well with others. In short they are quite satisfied, successful and happy. The *Overcontrolled* cluster ($n = 36$) was characterized by a high level of *Neuroticism*, slightly negative scores on *Extraversion*, low and moderately low values of *Openness* and *Conscientiousness* as well as a high level of *Agreeableness*. This cluster indicates a personality prototype which is emotionally unstable, somewhat introverted, not open-minded, without the

drive to achieve great things in life, but at the same time getting along with others quite all right. They are not very happy, but have in a way come to terms with their life (compare figure 1).

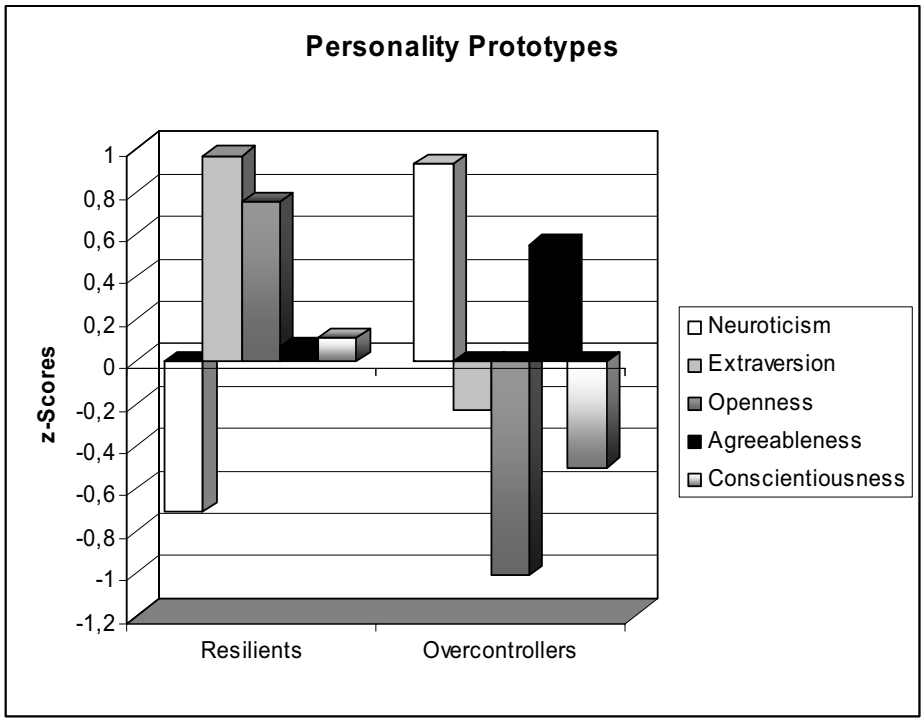


*Figure 1.* Configuration of personality factors within Resilient and Overcontrolled prototype.

In order to test for differences between the two prototypes, Student's and Welch's *t*-tests for metric and $\chi^2$ – tests for nominal data were computed.

With most demographic statistics, the two clusters did not differ. Significant differences were only found in regard to sex: there was a higher percentage of women in the *Resilient* (women = 57 %, men = 43 %) and more men (72 %) in the *Overcontrolled* cluster (women = 28 %, men = 72 %; $\chi^2 = 7.20$; $df = 1$; $p = .01$).

***Differences of Usage and Attitudes towards Mobile Communication***

First of all we had to discover that in most aspects the prototypes did not differ. However, some interesting differences concerning use and attitudes towards mobile phones could be found. The descriptive and testing statistics are displayed in table 1.

Table 1. *Differences between Resilients and Overcontrollers in use and evaluation of mobile phones*

| | Resilients | | Overcontrollers | | Comparison | |
|---|---|---|---|---|---|---|
| **Dependant variables** | *M* | *SD* | *M* | *SD* | *t* | *p* |
| **General Evaluation** | | | | | | |
| Facilitation of life | 3.62 | .92 | 4.03 | .91 | -2.04 | .04 |
| More independence | 3.08 | 1.00 | 3.67 | .93 | -2.87 | .01 |
| Feeling more secure | 2.77 | 1.30 | 2.19 | 1.17 | 2.15 | .03 |
| **Adoption** | | | | | | |
| Easy learning of new mobile | 3.91 | .93 | 4.39 | .77 | -2.59 | .01 |
| Problems in adopting the current mobile | 1.53 | .72 | 1.28 | .45 | 2.01 | .05 |
| Excessive demand of new technology | 1.92 | 1.02 | 1.33 | .59 | 3.47 | < .00 |
| **Availability** | | | | | | |
| Suppressing the own number | 1.77 | 1.15 | 1.36 | .80 | 2.00 | .05 |
| Registering in telephone directory | 1.60 | .91 | 2.03 | 1.11 | -2.06 | .04 |
| Switching the mobile off in meetings | 4.70 | .82 | 4.94 | .23 | -2.06 | .043 |
| Switching the mobile off for being not available | 3.08 | 1.27 | 3.72 | 1.21 | -2.41 | .02 |
| **Problem use** | | | | | | |
| Making calls despite of high cost | 1.83 | .98 | 2.36 | 1.29 | -2.10 | .04 |

*Note*. Dependant variables were measured using a five-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). $N_{\text{Resilients}} = 53$, $N_{\text{Overcontrollers}} = 36$, $df = 87$.

We discovered differences in the evaluation of mobile phone use on a very general level. Resilients as well as Overcontrollers acknowledged that the mobile phone facilitates everyday life and contributes to more flexibility and independence. Whereas Overcontrollers agreed to this a bit more than Resilients, those used the mobile phone more often to feel more secure while being out and about.

Secondly, the two prototypes differed concerning the adoption of mobile phones. Although the effects are rather weak, it can be seen that Overcontrollers feel more comfortable with the rapid development of mobile technologies and experience less problems when learning to use a new mobile end device.

A further interesting effect was that the prototypes differed in terms of managing availability. Both personality prototypes are not especially keen on distributing their mobile phone number, but Overcontrollers are less reluctant to register it in a telephone directory. At the same time, Resilients tend to suppress caller identity rather more than Overcontrollers. Further, Overcontrollers agreed stronger than Resilients to switching off their mobile in important meetings and also doing so when they do not want to be available.

Besides, we computed a factor analysis on the items relating to availability. Four factors were extracted. The last one represented items referring to unavailability and simultaneous concern for communication partners (e.g. calling back as soon as possible after a missed call, or getting anxious when not being able to reach someone). Whereas Resilients scored slightly below average on this dimension, Overcontrollers showed an above average level ($\textit{Mean Factor Score}_{\textit{Resilients}} = -,09$, $SD_{\textit{Resilients}} = 1,03$; $\textit{Mean Factor Score}_{\textit{Overcontrollers}} = ,50$, $SD_{\textit{Overcontrollers}} = 1,12$; $t = -2,50$, $df = 84$, $p = .02$). In summary, it seems that Overcontrollers are more aware of mobile (non)availability and its positive and negative sides respectively.

Lastly, a difference in some sort of problem mobile phone use was discovered. Resilients stated that they would reduce the number of made calls if they had to face high cost, whereas Overcontrollers were not so determined.

## Conclusion

Although personality dimensions as influencing factors on shown behaviour are regarded with caution, in the context of mobile phone communication differences between personality prototypes can be indicated. It seems to be the case that mobile phone use is of greater importance to Overcontrollers than to Resilients. In

general, they evaluate it more positively than Resilients, and are more prepared to use it despite of potentially high cost. Adoption appears to be more easy for them and they are more conscious of constant availability and strategies to manage it. At the same time, they get anxious more easily when not reaching communication partners.

When we recall the personality dimensions characterizing the two examined personality prototypes, the results fit quite well. Resilients are emotionally stable, convivial and rather relaxed, whereas the Overcontrolled are introverted and annoyed more easiliy, but at the same time show high agreeableness. We would assume Resilients to be more open to new technologies, but the Overcontrolled are more at ease to adopt a new mobile end device. However, mobile phones nowadays are a rather self-evident and not a brand new technology. At the same time, Overcontrollers can use the mobile phone to manage their everyday life. They might – in contrast to the more relaxed Resilients – appreciate the possibility to have more control of daily routines by being able to react more flexibly to changes. Last but not least, the personality patterns of the prototypes are quite well reflected in their handling of availability. The emotionally more unstable Overcontrollers are more distressed by not reaching someone and at the same time are sensitive of mobile phone free time slots like meetings and private time. Thereby on the one hand, they show some regard to the people they otherwise might disturb, and sometimes need to relax from the strain of constant availability.

This study is a first step to explore and investigate the influences of our personality on the use and evaluation of mobile phones. Further research in this field may lead to a better understanding of why the mobile phone is widely used, in which circumstances we do or do not use it and what our motives are.

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# Mobile Communication and Second Language Teaching

My paper has the aim to show if introduction of technological innovations into school and higher education is needed and also to consider the possibilities of such a reform and its pros and contras. I will emphasise the particular case of foreign language teaching.

Afterwards I will study the questionnaires I have filled out by students and by foreign language teachers at the high school where I teach. I intended to prove that students were ready to innovate their learning methods and would encourage getting technology into classroom, while teachers hardly even think about it as an opportunity of revival of classroom education. But the questionnaires revealed that the situation is more complex. I will examine the answers and I will clarify what I think Hungarian education could and should do.

## The need to change

I've been teaching at a high school for a year. The first thing I had to realise was that my senior students were not quite like I was 8 years before. While I was paying attention or at least was silent for most of the times during class, they kept on talking and the two things able to catch their attention for more than a minute were their mobile phones and their MP3 players. I knew that something has to be changed radically. I thought that if my students only like to play games and to listen to music it was fine with me. I only have to find a way to transmit knowledge through these channels. That was the time I first met prof. Kristóf Nyíri and started to read about mobile learning. The question that came into my mind is rather obvious: are we ready to reform our education system introducing mobile technology? Put it like that the answer is evidently no at least for one reason: Hungarian schools have very limited sources to spend on equipment. Anyway it is worth thinking about the pros and contras of such a revolutionary change.

## Overview of the major defaults of the present Hungarian educational system

School is supposed to be a place where people can learn things about the world and the society they live in and about other people and themselves, but not a place anyhing like the outdoors world. One can learn at school how to be bored which is surely not the major intention of education. Teachers must find a way of motivating their students so that they would become interested in acquiring knowledge. All activities in classroom should be useful and interesting. Students need to see that their exercises have something to do with their lives and their future. And by future I do not mean the next exam. In Hungary, education is organised by exams so the school has to prepare the pupils to pass these exams instead of preparing the students to make their ways in life. This also means that every single change in the educational system has to be top-down, and has to be extended to all kinds of schools from first class to higher education.

Due to the facts that always less and less children are born in Hungary and the automatic retirement age, as well as the number of lessons a teacher has to hold a week has been raised, schools usually cannot employ recently graduated teachers. Therefore the average age of teachers employed at our schools grows.

Moreover we have a time lag as regard the technical equipment of schools. An ordinary school has one or two computer rooms with 10-15 PC-s each for hundreds of students. The only class students generally use PC-s and internet-access is the so-called computer sciences.

## Pros and contras

Pros:

1) Useful, interesting and real

I mentioned three aspects which all urge the introduction of mobile technology into classroom education: school has to be useful, interesting and close to real world. New technology above all could engage our students' attention. It would create a completely new atmosphere: schools where the pupils have to deal with mobile phones and Internet would be much similar to their outdoors lives. It would

not be only interesting but useful as well. Nowadays everyone has to know how to use computers and cellphones, Internet is our way of getting information. We cannot leave them out of education.

2) New forms, new contents

Using mobile technology in all kinds of lessons would support the revival of the subjects and it would facilitate the integration of different fields. The revolutionary change of equipment and channels of communication would immediately renew the elements and information transmitted by them. Instead of memorizing lexical knowledge students need to learn how to correlate facts and how to solve problems in real life. The use of mobile technology in the classroom would make pupils learn how to acquire and select the information they need.

To sum up the formal change of classroom education would at once modulate the content of the subjects as well. Subjects would probably radically changed helping the artificially separated fields to find their ways of reconnection and giving a chance to the student to see the connection between single elements of knowledge.

3) Personalisation

Mobile devices let the individuals search and elaborate information in their own rhythm and according to their special interests. It becomes easier to differentiate between exercises students have to do and to coordinate various activities.

Contras:

1) Socio-financial question

First of all the cost of a change alike is incredibly high. Of course it would be cheaper if students would need only one cell-phone for the whole school carreer instead of numerous books and gear each year, but that cell-phone would not be much up to date within a couple of years. Who should pay for the equipment and incur the expenses of the accounts? The state do not have enough money for that, some parents and perhaps private schools do. The need to buy mobile devices would end equal chances even theoretically.

2) Risk of distraction

Using mobile technology in classroom would always infer the risk of students doing their own business during class. Using cellphones it is very easy and interesting doing something totally different from the thing the teacher asked to be done. From this point of view it would be more difficult to control students' activities.

3) Psychological question

There is a great risk that as soon as it becomes "normal", namely an obligation, adolescents would probably be as bored by mobile technology as by books and regular exercises. At this age being against every rule seems to be the one and only rule of life hence, as soon as the teacher wants what students want, they stop wanting it.

4) Incapacity of educators

To carry forward an educational reform teachers have to be open-minded and prepared. As I mentioned above all reforms of the Hungarian educational system need to be top-down, it has to be started at the education of teachers. To train educators who know and are able to use technological innovations is a great challenge for our country, such as training teachers who are expert in many different fields. In order to do so first of all we should separate the education of teachers from the education of scientists.

**Second Language Teaching**

There is a particular field where in spite of the difficulties education must deal with the revolution of communication. In order to learn the actual uses of language one has to study the contemporary ways of communication. When everyday communication is basically exercised through mobile devices and Internet, language teaching has to care for these new kinds of language usage. E-mail and chat have two enormous advantages from our point of view compared to letters and phone-calls: first of all they are cheap and second of all they facilitate communication with foreigners (and strangers). Correspondence has always been a good way of practicing a foreign language. Today students have the possibility to know foreign people without the need and the cost of travelling. One can easily find net-friends to communicate with even in real time. E-mailing an existing person is

more interesting and motivating than reading a letter in the textbook: the students become interested in understanding the e-mail in order to answer it.

**The questionnaires**

I was curious to see how people at our school see the possibility of change in education. I had the preconception that students really feel the need of change and that they would stand for any kind of innovation, while teachers only see the difficulties of such a reform and do not support it at all. To see if my hypothesis is right I prepared two questionnaires. Although my research is not representative since I only have it filled out by 10 teachers and 52 students, it proved that I was wrong and it revealed ambiguous attitudes. I obviously cannot generalise the results, I only will summarise the answers to call your attention to some unexpected points of view.

Teachers:

20% makes a point of their resistance to new forms of communication. One of the teachers for example refuses to have a cell-phone. Another thinks that mobile devices are noxious to our health and that it is no use letting the appliance work instead of the student. 90% has a cell-phone and 90% has Internet-access at home. Only 50% uses cell-phone daily and 30% writes e-mails each day; 10% chats frequently, 80% never does.

20% thinks that it is risky to make the students communicate with unknown people and to download unknown materials which they might not understand. One teacher thinks that her pupils cannot study by themselves. Another is afraid of communicating via e-mail because of the viruses.

40% refuses to use technology because of the lack and cost of equipment; one teacher says that our system is simply too rigid to integrate these new elements. 60% mentioned that because of the absence of personal contact education would become impersonal and less efficient.

30% has already given their students exercises where they had to use Internet or cellphones, one of them says that as he wanted his pupils to use their mobiles they lost interest. 30% thinks that new devices are ideal for research and self-supporting, complementary exercises but not for regular lessons.

To summarise only a small part of teachers wants to exploit the possibilities given by new technology and even those have doubts about its safety and its efficiency. A reason for that might be that teachers do not know and do not have advanced mobile devices, therefore they are not aware of the possibilities and advantages offered by new technology. I tend to agree with those who say that unknown materials might not be safe and comprehendible enough for students. This adds to teachers' difficulties: the pre-selection of materials found on Internet may take hours of work each day, meanwhile the choice of a textbook and the search for some complementary materials do not take too long.

Students:

Students are a little better equipped than teachers: 94.23% has a cell-phone – 67.3% uses it daily –, but only one person has a cell-phone connected to Internet; 23% possesses a notebook. 78.85% has Internet-access at home and 46% spends hours day-to-day on the Internet chatting or talking.

The majority (55.77%) would gladly use Internet in classroom, 9.6% says that they already do, but more than a third (34.62%) does not want to. One of the reasons supporting the use of Internet is that this way students can do whatever they want during class or at home making their teachers and parents think that they are studying. Some have no idea what to use cellphones in class for, others say that if someone would pay for them, they would give it a try. Students who are in favour of the idea think that using Internet in classroom would be easier, quicker, live, more comfortable, more interesting, informative and useful. One student refuses the use of Internet because of its bad effect on oral practice.

61.54% do or would like to use Internet for studying at home but 36.54% would not. The reasons for the use are like above, the reasons against the use are the lack of Internet-access, the uselessness of such exercises and the fact that it distracts attention.

Half of the students do not want to get acquainted with foreigners who do not speak their mother tongue, most of them because they think that they do not speak the foreign language well enough. 40.38% would like to be in contact with foreigners, some think that it is a great challenge and that it would constrain them to use the foreign language and help them learn the living language.

1.9% thinks that one can study a foreign language at home only using computer and cell-phone, 44.23% would study and 15.38% already studies on computer at home but 36.54% would not study at home at all because of the lack of time and interest or because it is expensive or less efficient. Based on these answers I can individuate three groups of students: one that has already begun to use Internet and educational softwares individually, another group would gladly do so at least in classroom and only need a little encouragement to use them at home, but more than one third of the students is not interested at all.

**Conclusions**

We are not ready to replace our school with a mobile-learning system. Not only teachers but students as well think that personal contact is needed in education, and by personal contact they mean being at the same place at the same moment. Being able to maximise all advantages of mobile learning we would not need ordinary schools. Mobile school would be a completely different system of education. We are not prepared for a revolution of the kind and we do not need this replacement yet. What we need and what we can do now is starting to introduce elements of mobile-technology into our schools. I mentioned a couple of times that for a reform of our educational system everything has to be changed top-down. My conclusion is that we are not ready for that, but we can make a compromise and start an alteration of the system from below. I can see two ways of doing so: long-distanced and individual learning. These are the ways of exploiting all the advantages of mobile learning without having to face its disadvantages. Both are already present and functioning but both need to be promoted to become general.

For their promotion the first thing to do is to make teachers familiar with mobile devices and the possibilities of e-learning so that they can make students interested in using them. Some students have spontaneously understood how much they can learn using mobile technology, educators are supposed to help those who do not start complementary learning individually. Producers should think about sponsoring experimental classes where teachers and students can test new devices. In order to create mobile-materials educators and experts of mobile technology need to collaborate. I am saying that the compromise between school and mobile learning for now could be the field of homework and research. I know that is not much, but it could be a beginning.

Heli Rantavuo

# TRANSITORY TOOLS: CAMERAPHONE PHOTOS AND THE INTERNET

## The convergence of cameraphones and the internet through snapshots

Mobile messaging has not isolated cameraphone snapshots into the sphere of mobile phones and mobile telephony networks. On the contrary, through the circulation of snapshots, boundaries blur between mobile phones and the internet. E-mailing photos to friends is as important to snapshot photographers today as it was to make print albums in the past. Teenagers browse their phone albums for cool photos to add to their internet profiles. Hobbyists build up internet sites for sharing cameraphone shots of their accomplishments.

The circulation of cameraphone photos can be seen as part of a wider development of media convergence, characterized by scholars with different terms and emphases. The media analyst Henry Jenkins (2006, 3-5) defines convergence as the circulation of media content across different media systems. He stresses the consumers' role in discovering and creating new platforms for circulating existing media content in their own terms. Sociologists Don Slater and Jo Tacchi (2004), in a very different context of poverty reduction in South Asia, speak of "communicative ecologies" (ibid). They involve "the complete range of communication media and information flows in a community" (ibid, 2) as well as social networks. New technologies become interconnected to locally existing communication channels, such as postal services, radio, and face-to-face interaction. Slater and Tacchi point out that complexity and unpredictability are part of the process when new media are introduced to the ecologies. (Ibid, 2-4) Mizuko Ito (2007) speaks of "media mixes" in Japan. The focus here is on mixing portable media formats from mobile phones through electronic pocket games to trading cards. From the user point-of-view, Ito states, the mix creates synergy. The formats support each other as the user consumes, and importantly, creates her own media content such as game characters. (Ibid.)

These three views on media convergence are at the background of my discussion of cameraphone photos. First, I consider challenges that the users I interviewed faced in mobile picture messaging. Next, I observe ways in which they extended the use of their cameraphone photos to internet channels, and the technical and social resources they needed. Finally, I will suggest that cameraphones and the internet together foster a form of snapshot photographic communication that is characterized by transience. In the internet, the snapshot becomes a disposable tool, an instrument, or an adornment that momentarily supports communication related to everyday affairs. This development transforms “home” photography, where photos have been regarded as lasting visual artefacts that document family histories.

## A study with cameraphone users

This paper is based on an empirical study that I carried out for my doctoral thesis in 2006. Sixteen Finnish cameraphone photographers participated: two high-school girls and three boys; three 20-35-year-old women, two men; and two 35-53-year-old women and four men. Their professional fields ranged from health care to the IT industry. None were experts in digital photography or mobile or internet technologies. All participants resided in urban areas in Southern Finland. During two to three weeks, they noted down their interactions with digital photos. When possible, photos were saved. In the interviews, viewing the photos, I asked the participants about taking and using the snaps, about their experiences with technology involved, and about their plans concerning digital photography. I wrote up case studies on individual participants, summarised them into themes, and abstracted across the themes. The names and places that appear in the text

have been changed and the quotes were translated from Finnish by the author.

**What is wrong with mobile multimedia messaging?**

Cameraphone marketing and design promote sending pictures through mobile networks, or transferring them from phone to phone through wireless transfer techniques. However, many participants were ignorant about the transfer capabilities of their phones, and about which services they had subscribed to. (See also Oksman 2006, 112) Not all users could tell which functions were associated to the phone and which to the services connected to it. This made it difficult to solve problems as they occurred. Jani was aware of his ignorance. He was, nevertheless, unwilling to mend the state of affairs. He felt no need for the mobile messaging service, especially as he felt it was too expensive.

*But [laughs] I'm also not sure if I've got the service working. I know I've sent them, back then, I've activated it, but I haven't sent any or [laughs] received any. So in that sense. But in a way, I haven't seen it, like, even the novelty value of it. That I would send one to someone, and call them back saying 'did you get it' [laughs]. So, like, it just doesn't attract me at all. I don't know. Because I know, no matter how many offers there are for subscriptions, like, 'now you can send [MMS's] for one cent a piece all December', so they could make people use these services, I just wouldn't. E-mail is such a good way, or posting them in the internet. (Jani, architect, new media designer, 30)*

Sami, on the other hand, was eager to send and receive photo messages on his phone. He was skilled with ICT's and determined to make the messaging work. When technical problems appeared he persisted to find the solution. Sami's struggles were illustrative of the difficulties that the participants had when trying to manage their phones to make them support picture messaging.

*Saara had tried to send it twice already, when the specs were still at the shop, and she was trying them on. She would have asked for my opinion. (...) Anyway, there was this problem that, like before, I didn't have the MMS settings on. Okay, then I had the settings on, but still there was some problem with the default settings, like, 'receive MMS's only in your home network.' I don't even know what they mean by 'home network' but [laughs] it's no wonder if no one ever gets any messages. (...) I started suspecting that it must be about a setting in one of the menus cos' the bloody message failed twice to get through. So I went to the menu, found the right setting and ticked it. When we next spoke, I told Saara she should try to send it once more. Sending the messages began to be a bit artificial at this point, but well [laughs], the idea was there before all this. (Sami, 28, new media professional)*

Some of these difficulties may have been erased since the interviews. It is now possible in Finland to sell phones with service settings installed, and to charge the customer a monthly fixed price. However, some of the problems were due to handsets. Size restrictions for files sent and received varied, as did consequences for temporarily deactivating the handset by removing the personal user card (SIM-card). Also, as Oksman (ibid.) has noted, people do not know which of their friends and relatives own a picture message-enabled phone. All in all, mobile picture messaging did not seem to find a convenient place among other forms of communication. Rather, the participants treated it as a separate task.

*I do it on the computer, with the Messenger. Because of the cost. Well, it's not so expensive, but it's just not my thing. I'd rather say, when I see you online you'll get a few photos, like. Much easier. Neater. (Henri, 18)*

**Cameraphone pictures and the internet**

Low cost, effortless use, and technical compatibility have been observed to be at the core of active, user-generated technologically mediated communication (Battarbee & Kurvinen, 2005, 81-82). In this study, internet messaging services emerged as support for such communication. The spontaneous discussions and exchanges that involved cameraphone photos took place in instant messaging windows and chat environments.

*It's, like, chatting, and posting pictures, when we've been out mucking about. We remember the photos and the events, just chatting and asking, like, do you want to meet up today, reminders, and stuff. (Tommi, 17)*

*Eeva: [T]he picture that I sent to [my boyfriend] ended up in my Messenger, umm, as an ID, as a Messenger, like, photo.*
*Heli: (...) You mention here that getting the cable was groundbreaking for using the photos. What does it mean?*
*Eeva: Well, precisely that I can send them more easily by e-mail whereas it, [the phone] took, or, it's somehow so slow to e-mail with [the phone] after all. So, I liked it that I got them, for example the Messenger photo, I can use them in that kind of situations. So that's why I thought it was groundbreaking. (Eeva, musician, 27)*

The high-school students and young adults were the typical users of these applications. Aaro, 47, engineer, on the other hand, used his cameraphone pictures for his hobby called geocaching, where discoveries were announced on an internet site. According to Aaro, photos were not required, but he liked to add them in. Messages containing several photos, or messages for which instant reaction was not expected, were sent by e-mail in all age groups. E-mail was seen as a cheaper and a more reliable way than mobile messaging to reach recipients, especially if there were several of them, and if they were in foreign countries. E-mail was also perceived as free of cost. After lunch with four of his colleagues, Tapio, 52, engineer, had shot pictures and a video clip with his phone of one of them leaving the company parking area with his new motorcycle. Upon retuning to his office, he forwarded the files by e-mail to the other colleagues. Toni, 51, engineer, forwarded work-related cameraphone photos daily to his colleagues both by mobile picture messages, e-mail, and the internal company network. Aaro had a habit of sending cameraphone photos that depicted freezing winter weather by e-mail to acquaintances in what he called the hot zone.

In online photo circulation, the origin of the photo became irrelevant, whereas participants distinguished between "real" and cameraphone photographs in their archiving systems, for example. In internet communication, what mattered was what the pictures portrayed. Photos were picked according to the purpose from entire pools of photos available on computers. Pictorial qualities, such as image precision or colour reproduction, brought up when evaluating cameraphones in general, were not mentioned in the context of circulating photos in the internet.

Downloading photos to the computer was not self-evident among the participants. It involved acquiring cables or wireless transfer devices, downloading software from the internet, and technical problem solving. The pieces of hardware were consumer products not available for free. Some participants had support from their workplace, school, or family to help them in the purchases and in installing the devices. The significance of this support became manifest in the case of those participants who wanted to download their cameraphone photos to the computer, but lacking financial or technical help, were reluctant to make the additional purchases.

**Circulation in parallel with preservation**

Cameraphone snapshots were used in connection to various communicative events in the internet. Common to these events was their transitory nature. The photos served as accessories to exchanging greetings, jokes, information, or everyday experiences. Internet photo profiles were modified as soon as a more favoured or up-to-date photograph was available. Cameraphone snapshots suited the transitory mode both through their content and their technical qualities. They depicted daily life, often the topic of online conversations. It was easy to take the phone to hobbies or to work. The photos were snapped spontaneously, without much planning or deliberation. As relatively small files in size, cameraphone photos were easily transferred through internet networks. The photos were themselves for the most part passing in nature. The participants took several photos weekly, even daily. As the collection built up, the photos had been viewed and shared, and the moment that was depicted had lost its attraction, the users deleted the photos. In fact, the participants did not perceive cameraphone snaps as *photographs* at all. Cameraphone photos appeared to be thought of as disposable tools, instruments, or adornments that momentarily supported communication.

*Heli: You have digital camera photos on CD's and in print and on DVD's. Why haven't you saved [cameraphone] photos in the same way?*
*Paula: Ummm...well [laughter] the thought hasn't even crossed my mind, that they should be [put] somewhere else but the phone, because they don't...Somehow the photos taken with the digital camera are more like photographs, the phone photos are, like, for messages or, not so much for keeping, I think. (Paula, 31, nurse)*

In film snapshot photography, print photo albums have documented, represented, and preserved entire family histories. (Chalfen, 1989, 133-136, 139-142) The participants in my study continued to be attached to the idea of lasting documents. However, the purpose of preservation was associated to digital cameras. The transient genre of snapshot circulation was forming to exist in parallel, precisely with the help cameraphones and internet applications.

**Conclusions**

I have discussed cameraphone snapshots as part of the convergence of mobile phones and the internet. Based on an empirical user study, I described difficulties users faced in mobile picture messaging, and their engagement in pictorial internet communication. I pointed out the technical complexity of cameraphone photo circulation, and the consequent problems that called for time, effort and support from local social networks. I suggested that the motivation behind the circulation was to be able to mix one's cameraphone photos into internet communication as they both often dealt with everyday life. As casual snaps, cameraphone photos suited the informal tone of internet communication, and as lightweight files, they were easy to circulate. I concluded that in parallel to conventional home photography, geared towards preserving photos, photos were circulated as transitory tools for transitory communication. Future will show what kind of cultural status this kind of pictorial communication gains. On one hand, historians have called for photographic documentation of everyday life, which is now available in the internet. On the other hand, cultural theorists have anticipated "new opportunities for expression" (Jenkins, 2006, 11) coinciding with technological change from film to digital. (See e.g. Slater, 1995, 144) Meanwhile, snapshot media seem to continue to converge as people communicate their everyday lives in the internet.

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# Interactional Divergence notwithstanding Technological Convergence

**Ruth Rettie**

## Introduction

Media convergence has been heralded since the late 90's. Although there are now many artefacts that combine different modes of communication, this paper argues that technological convergence often creates new hybrid communication formats, increasing, rather than reducing, interactional diversity.

The paper is based on research that indicates that communication is not simply taken for granted; rather, users are relatively aware of the affordances of different forms of communication and, on occasion, deliberately select one for its specific interactional characteristics. A key finding is that even minor differences in technical and social factors can alter the process of communication. The research shows how the medium can affect the message, shaping the path of a conversation, and its outcome. Technological convergence is not necessarily reductive, but can create interactional diversity. This is because interaction is very sensitive, not only to the precise constraints and affordances of the communication artefact, but also to usage circumstances and social norms. Rather than reducing communication complexity, the technological convergence of different modes of communication in an artefact may create hybrid forms of communication, with distinctive interactional affordances.

## Research Method

Mobile phones combine two communication media in one device: phone calls and text messages. On any occasion users have a choice of medium, and theoretically, this should increase users' awareness of the interactional characteristics of the two media. The study explored respondents' whole communication repertoires, but focused on their perceptions of mobile phone calls and text messages. The research primarily consisted of long open-ended interviews. The interviews were supplemented by 24-hour communication diaries completed by respondents on the day before their interview, 278 text messages collected during the interviews, and respondents' mobile phone bills (where available). The research sample was based on a quota that divided the 32 respondents by gender and into two age ranges, 21 to 34 and over 35. The interviews took place in the UK between April and September 2005.

The research was informed by communication concepts from HCI and sociology, but also attempted to identify the underlying constructs used by respondents when comparing different modes of communication. Throughout their two-hour interview respondents were encouraged to talk about and compare different forms of communication, and to explain their choice and usage of communication in their various relationships and on selected occasions. In addition, respondents were given cards representing different forms of communication and were asked to group together those that were most similar and talk about their similarities (cf. Kelly, 1955).

## Research Findings

### *Communication Characteristics*

Respondents used many different constructs to describe and differentiate forms of communication, but a key concept was copresence. A fundamental difference between text messages and phone calls (mobile or landline) was that in phone calls the other person was 'there' and the interactants were 'there together'. This was related to the temporal characteristics of the medium; asynchronous forms of communication such as letters, SMS, and email, did not afford copresence. Asynchronous communication was less demanding because it was less continuous, which gave the interactants time to think about their responses and also to engage in other activities during the conversation. Furthermore, because simultaneous communication was not possible, conversational turns were not subject to concurrent interruption.

Two other constructs were often relevant when respondents compared different forms of communication: communication costs and scope for expressive content. Production and reception costs (derived from Clark & Brennan, 1991) are the costs of sending and receiving the communication, and include time, effort, emotional and financial costs. These factors were often used to explain choice of a particular mode of communication. For example, text messages have minimal production and reception costs; this reduces the contact threshold because contact requires little effort from both the sender and the recipient. This allows people to send unintrusive 'thinking of you' messages.

Scope for expressive content was also important. Respondents talked about both explicit and implicit content. Non-verbal and para-verbal cues conveyed the mood and emotional state of the participants. In line with Goffman (1959), respondents thought that less intentional expressions given off were more veridical. In SMS the

interactants have time to think about their messages before sending them, so that any expressions given off can be presumed to be intentional. In contrast, mobile phone calls have much more expressive content and there is less opportunity for deliberation. This reduces intentionality and increases reliability, because unintentional expressions given off are seen as more difficult to simulate.

The research included other forms of mediated communication such as email, phone-email and IM. Ostensibly they are somewhat similar to SMS in that they are textual and near-synchronous, but interactionally they are very different. There was scope for much more content in both emails and IM; this enabled more substantial communication. Production cost was low in email (for those who could type) but reception costs were high if the recipient wasn't already online. In IM there were expectations of prolonged conversations, which created time-costs for both interactants. In phone-email typing was more difficult; this increased production cost compared to computer-email, but users said that this was offset by reduced expectations of content and etiquette.

***Social Factors***

The differences between text messages, email, phone-email and IM illustrate the interaction of technological and social factors. In each case the technology affords near-synchronicity, but in practice immediacy of feedback is socially shaped. IM is technically almost synchronous, but in practice there are often delays, because the interactants are engaged in multiple conversations and other activities. It is social practice that sanctions multitasking during IM conversations creating delay, proscribes this in landline and mobile phone calls, but allows it in Skype VOIP (voice over Internet protocol) calls. Although email is technically quick, in practice delays occur because many of those who do not use computers at work check their email accounts infrequently. Similarly, whereas mobile phone users are expected to check their mobile phones regularly for text messages, it is accepted that email accounts may be accessed only sporadically.

The research indicates that SMS is relatively free of socially prescribed style and content etiquette. This may have been technically shaped by the small screens and tight character limits of early phones, but social practice continues to endorse very brief messages, reducing production and reception costs. Email has more etiquette but the research suggests reduced expectations of content and formality in phone-email, presumably because of typing difficulties and smaller screens. In phone-email

the technology used is not indicated technically, but frequently in a tag line such as 'sent by phone-email' or 'sent by BlackBerry' at the end of the email (Mazmanian & Erickson, 2007); this usage reflects the *social* distinction between phone and computer-email.

A key difference between phone-email and SMS is that the former affords a distinction between those to whom a message is sent and those who are merely 'copied', but the meaning of this distinction is determined socially and not technologically. The interaction between social and technical factors helps to explain why technological convergence can create interactional divergence; even where the technology is the same, social factors can create divergence.

***Collaborative Interpretation***

Garfinkel (1967) claims that understanding in talk is achieved through an ongoing interpretive process, which he calls the documentary method of interpretation. There are many possible interpretations of what each person is saying, but working together, the participants progressively identify a common underlying pattern or shared interpretation. In asynchronous channels where there is a considerable delay, such as traditional letters, the time lapse between turns makes this type of collaborative construction of meaning impractical. Unlike traditional synchronous communication, near-synchronous communication enables a degree of collaborative interpretation. This process is affected by the length of turns, the temporal relationship between turns, and the precise format of the text. These create important interactional differences, and demonstrate the sensitivity of interaction to relatively minor technical features.

The extent to which communication is collaborative depends on turn-size, and this is both socially and technologically shaped. Text can be transmitted letter-by-letter, word-by-word, sentence-by-sentence, in paragraphs or in extended writing of several pages, etc. Fractured transmission facilitates interruption, promoting cooperative construction and interpretation of meaning; communication is no longer individually controlled, but is jointly forged by the participants. The time lapse between turns is also relevant; long delays make ongoing collaboration difficult. In SMS, feedback is relatively quick and a degree of cooperative interpretation is possible, but production of each message is usually uninterrupted, giving each sender control over their own contribution. Expected immediacy of feedback seems to reduce the size of turns. Thus emails vary in length, but tend to be shorter when

both participants are online at the same time. In IM, although the quantity of text is not technically constrained, short turns are encouraged because both interactants are online and are informed when the other interactant is typing a message.

Some respondents were aware of differences in the degree of collaboration and control afforded by different communication modes. Ulysses contrasted emails to phone calls: “you get into much more story telling mode in a way because it's uninterrupted”. Long emails were monologues in contrast to the dialogue of phone calls. In phone calls conversational topics were collaboratively negotiated, but in email “you'll find yourself writing about things that you mightn't even talk about. Yeah so you'll relate anecdotes, little things that happened that might never have come up in conversation.” Lynn felt that she could be manipulated in phone calls: “because they can interrupt or they can change – they can say something, well makes – which will make you change what you were going to say. Whereas on a text message, because it’s only - it’s like writing a letter, you can, you can kind of break down exactly what you want to say and it doesn’t get manipulated [in] any way, and then you send it, and it’s gone”.

The collaboration process also depends on the capacity of the communication channel to convey expressions, and on the persistence of these expressions and their consequent availability during subsequent turns. In channels with a low capacity, such as SMS, there is less scope to reprise ongoing understanding and to seek clarification. Moreover, previous conversational context is less available: in many mobile phones it is awkward to refer to earlier messages. In contrast, in email (on default settings) messages automatically include earlier message(s). Threading facilitates collaboration and reduces indexicality, because the path of the conversation persists, and can be referred to. (A variant of this process occurs where the recipient interleaves comments with those of the sender, perhaps using a different colour text.) In IM, ‘documentary’ cross reference is facilitated because the whole conversation is displayed in the system interface.

## Conclusions

The interactional differences between text messages, email, and IM, illustrate the sensitivity of interaction to the specific characteristics of communication artefacts. The production and interpretation of communication is affected by the size of turns, the temporal relationship between turns, and the precise format of the text. These are shaped not only by technology, but also by social factors. In technological

convergence communication modes move to new artefacts and combine with others; this can change the nature of the interaction afforded, creating interactional divergence. Thus phone-email is interactionally rather different to computer-email. The smaller screen, awkward keyboard, and likely concurrence with other activities sanction shorter messages and reduced etiquette, creating a new hybrid form of communication, which is evidenced by the addition of the tag line 'sent by phone-email'.

Technologically email and text messages have converged on BlackBerry and email enabled phones, but this has increased rather than reduced communication complexity. Although their destination may be the same person and mobile phone, text messages and emails have different connotations of urgency (Mazmanian & Erickson, 2007). Despite technological convergence, phone-emails do not replace text messages; socially they may play quite different roles, but on the other hand they are not exactly the same as computer-emails. Similarly, text messages sent to SMS enabled landline phones are interactionally different to text messages on mobile phones, they are not sent direct to the recipient, thus creating delay, and are accessible to all household members, reducing privacy. This creates a hybrid form of communication which is useful for updating a household and interactionally rather like a note pinned to the fridge door!

The convergence of several technologies in a single device also creates hybrid communication modes because different communication formats may be used *together*. For example, in Skype, users may combine textual chat with a phone call. The production and interpretation of meaning may include both communication modes with text complementing the verbal conversation, for instance, by providing a relevant URL in a convenient format. Technology convergence in an artefact can also affect communication indirectly. For example, the convergence of time measurement and mobile telephony allows people to check their phones frequently for messages, while ostensibly looking at the time.

Recognition of the sensitivity of interaction to relatively minor technical factors helps us to recognise the increasing diversity of communication. This is particularly evident on the Internet. In the Facebook social networking site users can communicate in many different ways: through profile details; through status messages; through 'pokes', by writing on a 'wall' (where messages can be seen by all friends); by sending a private message; by writing notes, by making posts, by

writing a caption on a picture; by tagging someone in a picture; by writing a comment on someone's picture; by creating a group; by writing on a group discussion board; by sending a message to everyone in a group; or by creating an event. The eagerness with which Facebook members embrace and use these communication formats reflects their sensitivity to their interactional differences.

Despite the technological convergence that is frequently predicted we have seen an unprecedented multiplication of communication formats in the last ten years. This seems to have increased users' awareness of the interactional characteristics of different communication modes.

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# Digital images in mobile communication as cool media

Klaus Sachs-Hombach

## 1. Introduction

According to Marshall McLuhan, cultural development is primarily influenced by the media a society engages. This does not only apply to media in a narrow sense like print or television, but in particular to the technological underpinning of the media, i.e., to physical gadgets like radios, computers or mobiles. In his assessment of these various media, McLuhan has favoured the so called cool media of "low definition", e.g., telephone or television. Whereas most researchers nowadays would not agree with his preference of television, there is some dispute about the question whether the internet might better epitomize the influential role McLuhan has reserved for television. And since mobiles have increasingly turned into sophisticated computers equipped with cameras and internet access, it is not an outlandish assumption that – under the premises of McLuhan's media theory – mobiles are the actual agents within our accelerated cultural changes.

In my talk, I would firstly like to present McLuhan's media theory, particularly his distinction of hot and cool media (2). Before applying it to mobile communication (4), I consider it as important to determine the genuine advantages and disadvantages of visual representations in the framework of a general image science (3) in order to clarify whether mobiles are able to adequately integrate them. Mobiles have certainly become hybrid media combining telephone with photography and even television in a near future. But since the quality and size of mobile displays is rather limited, visual mobile communication might be just an accidental by-product remaining less important compared to the verbal mode of information exchange. On the other hand, it can be argued that digital images within mobile communication are able to create novel functions like a particular authentic mode of visually presenting a state of affairs in real-time. In order to decide on these alternatives, in my opinion a media theoretical assessment of mobiles has to consider the different possibilities according to the most advanced standards that a modern image science can offer us.

## 2. The media theory of Marshall McLuhan: Hot and cool media

If one would like to make sense of the often quoted but rather cryptic statement by McLuhan that media is the message, one has to concentrate on the social effects that are caused by the introduction of new (media) technologies. McLuhan is certainly right to emphasise the importance of technological changes for a society, but this does not contradict the assumption that the content of media (e.g., the context of The Communist Manifesto by Marx) influences society and history as well. Technologies, like steam engines or computers, for example, have certainly shaped our modern working conditions in a drastic way independent of the particular contents or products that these technologies help to produce. Therefore, McLuhan's general thesis seems fairly plausible within the history of technology, but it is rather doubtful whether it can be properly applied to communicative media, like film or mobiles, since the content within communication even seems to make a big difference.

The argument McLuhan is giving for preferring the technical forms and effects to the content of media derives from the following assumptions: Firstly, social changes are mainly caused by changes of our perceptual system, and secondly, media are primarily responsible for these changes of our perceptual system. The latter

assumption, which is often taken to express a technological determinism, arises from the thesis that media are extensions of our senses. According to McLuhan we are able to enhance our perceptual as well as our bodily and mental systems by the use of media. But in turn, this causes profound changes of the relations between the single senses. That is in particular important since McLuhan presupposes an original equilibrium of the different senses that has been lost in western societies by the dominance of the visual sense.

For this rather negative development McLuhan mainly blames the introduction of the alphabet and finally of print. Oral societies were able to keep an inner equilibrium and, due to this ability, also some kind of metaphysical unity with the universe by imaginative powers, whereas the modern, visual age forces everybody into fragmentation and alienation. McLuhan's assessments of various media must be seen relative to this historical picture. A media is then evaluated as politically and socially valuable to the extent it contributes to restoring the lost equilibrium. Such a return was enabled by the invention of electricity and by all the devices working under the principle of electricity. Contrary to mechanics, electricity is supposed to form cycles and nets. Therefore, McLuhan regards it as an extension of the central nervous system. This final extension completes the alienation in western societies on the one hand, but also creates the means to ease the dominate grip of the visual sense. Epitomised by television, people are now encouraged to engage more than one single sense and to participate while using media.

In this context, and relevant to image science, McLuhan's distinction between hot and cool media is of special interest since it groups the different media in an unusual way. In my theoretical approach, it is more relevant to distinguish arbitrary and perceptual-based media, e.g., verbal and pictorial signs. But according to McLuhan, written language and perspective pictures are both hot media and much more similar to each other than to cool media like oral speech, cubist paintings or telephones. The former, belonging to the Gutenberg Galaxy, force a strictly determined view upon the recipient, the latter have tactile qualities, asking for participation und thus turning them into cool media.

McLuhan's definition of hot and cool media is somewhat blurry, though. There are mainly three relevant criteria (see McLuhan 1964: 22-23): Firstly, hot media are characterized by „high definition", that is, they are intensified by a high degree of information density. One might call this the redundancy condition. Secondly, hot media normally engage one single sense, whereas cool media ask for two or more senses. This might be called the uniform reception condition. Thirdly, there is the participation condition: Low media require a higher degree of participation than hot ones. The different criteria are somewhat related: Since hot media are very intense, there is some kind of information overflow that concentrates on a single transmitting sense and does not need any special participation to fill in missing information.

McLuhan's distinction is stimulating, but also highly controversial. As an example, he considers film as hot media, but there are surely two senses engaged: eye and ear. Television on the other hand is mainly regarded as cool media because it needs completion. The reason McLuhan is giving for this assumption is rather curious: The TV image is supposed to be built up on the screen by electrical impulses and therefore to have a more tactile quality of sculpture than of picture so that the viewer

"reconfigures the dots into an abstract work of art" (McLuhan 1964: 313).[1] If one does not find this assumption convincing – and I do not – one can either claim that McLuhan was mistaken in this example, but can be affirmed if one substitutes television for internet or, even better, mobile communication (and I am going to do this in the last part of my talk), or one could claim that being cool or hot is not a property of media but of how media are used in relation to a given cultural standard (see for example the discussion by Sandbothe 2001: 152-162). It is of course helpful for the understanding of media to know the specific context and the way media is used, but it tends to decrease the value of media analysis, since every media could produce any effect, if only the forms of use matter. If one thinks it is reasonable to determine properties of particular media and evaluate them according to the likely effects these properties are responsible for, then one should find a more solid approach for distinguishing the different media, which I am going to try in the next part of my talk.

**3. Pictures as perception-based signs**

From my point of view, pictures are perception-based media (see Sachs-Hombach 2003). This formula should make the mutual and agreed conditions of the concept "picture" explicit, namely the medial character and the perceptual basis of pictures. It argues that the term "picture" should only be used to refer to such phenomena that have at least some content and that are interpreted according to standards of perception. The medial and perceptual aspects provide two components that, by themselves, are not special to pictures: they also appear in contexts that do not refer to pictures. However, together they constitute a network of perception-based references. Thus, picture use is only given, if the two components appear together. As important topic, the analysis of the different types, functions and usages of pictures should then include an analysis of the variable combination of the two components. There are some types and some functions of pictures (namely the immersive pictures) that rely stronger on the perceptual basis than others.

Central to this suggestion is the concept of the medium. In its relevant meaning here, the concept designates the physical vehicle of a sign system. Media and signs are mutually conditional. The concept of "media", like the concept of the sign, can then be split up into the concepts of the linguistic and the visual medium (among others). It is systematically productive if, initially, arbitrary media are distinguished from perception-based media. The class of perception-based media should be subdivided according to the different perception modalities. Within the scope of such a structure it becomes clear that it is solely the sign aspect which suggests the orientation towards semiotics, whereas, to differentiate the system of visual media from the multitude of other media, the perceptual basis serves as a specific difference. The concept of perception-based media does not only imply that a medium is perceived in the process of communication, since this condition generally applies to media usage. At least some aspects of meaning meditated by perception-based media have to be motivated by the structure of the medium itself, while media of arbitrary signs normally do not indicate the relevant meaning.

[1] McLuhan's characterization of television is also rather strange. See for example: "TV will not work as background. It engages you. You have to be *with* it." (McLuhan 1964: 312)

Due to the two sources relevant in pictures, different levels of meaning can be distinguished: content, reference, symbolic meaning and communicative meaning. Pictorial content is what somebody sees *in* a picture. Content is created from the visual properties of the picture vehicle, sometimes depending on context and on how typical the represented characteristics are, but mainly due to specific mechanisms of perception. But it does not, as fictional pictures show, coincide with the picture referent nor is a referent required. Because different objects can generate the same perception under a certain perspective, the reference of a picture is even always, and in principle, uncertain. To determine it, the content provides only a necessary condition that has to be specified by the context of use and is, thus, always a contextually anchored function. A third important phenomenon of meaning is the symbolic meaning, that is, what a picture "alludes" to. It is attributed to a picture or to an element of a picture by means of the content, but an understanding of the symbolic meaning asks in addition for a sophisticated knowledge about the social and cultural context the picture is used in. Finally, the communicative meaning has to be differentiated. It consists of the "message" that the picture is to carry or of its intended purpose. In addition to content and context, the communicative meaning is influenced by a complex net of communicative maxims.

**4. Pictures and mobiles**

Having now introduced some of the fundamental distinctions that I find helpful within image theory, let us finally come to the assessment of digital images in mobile communication. McLuhan would certainly regard mobiles as cool media and would praise them accordingly. As telephones, mobiles are already cool media. Since they nowadays have additionally built-in cameras and also facilities for watching TV, they combine at least two cool media: telephone and TV. Internet is certainly the next cool media that will be integrated into mobiles. Therefore, I assume that McLuhan would have considered mobiles as the final breakthrough abandoning the Gutenberg Galaxy.

Interestingly, if one starts the evaluation from the theoretical approach that I have outlined, the picture looks similar, although I would not agree with the arguments McLuhan is giving. According to my analysis, it is essential for pictures to be concrete and specific, which renders them more suitable for some functions than for others. A great advantage of pictorial communication is certainly that they can convey information in a dense and direct way. Therefore, they are particularly helpful for generating sensations close to experience (e.g., film or virtual realities) and for quickly accessing complex matters (e.g., maps or graphs). This is due to the fact that pictures possess a multitude of relevant dimensions like colour, form, relative position of single elements or thickness of lines. These visual variables facilitate the efficient simultaneous presentation of data for orientation or structuring.

On the other hand, this efficiency leads to the disadvantage of a limited expressive scope. Compared to language, it is for example harder to express conditionals or logical relations like the negation. In addition, it is more difficult to visually integrate meta-communicative elements like illocutionary indicators. Furthermore, pictures are rather underdetermined in respect to reference and communicative meaning.[2] Therefore, with pictures we tend to communicate more implicitly than with language

[2] Wittgenstein had this in mind when he wrote that the same picture of a boxer might be used in order tell somehow how to stand or how not to stand or how someone had stood etc. (Philosophische Untersuchungen § 22)

presupposing either an established context or the heavy use of communicative maxims for inferring the pictorial message.

Looking now to the various functions pictures are used for within mobile communication, one can roughly distinguish between immersive picture uses and indicative pictures use. The former is to convey details close to perception, the latter is mainly to indicate a certain state of affairs, as photographs are traditionally said to do. Since the display of mobiles is rather limited, immersive pictures – and these are roughly the sort of pictures McLuhan would consider as hot media – do not work properly on mobiles. At least they will not have the immersive effects we experience with film or VR. In connection with the internet, e.g., with "youtube", television or video-streaming might become a familiar feature of mobiles, but then they would not serve the same purpose. Watching a video on a mobile in low resolution and with a quite blurry quality creates a certain distance and is rather alluding to a state of affair than actually presenting something vividly. Therefore, the perceptual component of visual representations (i.e., the pictorial content) is less important in mobile communication. In turn, these pictures then need more conventional forms of representation and socially established contexts of use in order to function properly.

I assume that indicative pictures, like snapshots, are more likely to become a standard of mobile communication, because those functions of pictures where the perceptual involvement is rather low are more suitable for the technical features of mobiles. As one might observe with the phenomenon of "happy slapping", the fact that a certain action took place is more relevant than having the details of the action. This, of course, presupposes that the recipient still feels justified in making referential inferences. Since the average recipient has meanwhile adopted a more sceptical attitude towards photography, being aware of how easily it can be manipulated, it is astonishing that the referential aspect in mobile communication is nevertheless trusted upon. I suppose that the reason for this can be seen in the fact that mobile communication is – different to mass media – still kind of a face-to-face communication between members of the same social group guaranteeing a certain standard of trust.

In conclusion, it can be said that McLuhan's distinction between hot and cool media is likely to turn out valid and at least still helpful despite his unconvincing arguments for it. But in general, one should develop a better theoretical account of pictures and, in particular, substitute television for mobiles. Mobiles are certainly better candidates to illustrate his media theory since the features of visual representations in mobile communication seem to be exactly the ones that McLuhan had misleadingly ascribed to television.

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**Klára Sándor**

# On the razor's edge – blogging politicians

The development of communicational technology in the 20th century has transported public life into private life. We are watching presidential speeches and real wars sitting on our couch, having a cup of coffee meanwhile. This process has led to the medatization of politics. The traditional ways of political behavior were overwritten by the omnipotence of media sensitivity. A new genre, infotainment, has developed, and the spin doctors of the last few decades were wondering how to present politicians as private persons to gain more popularity and, first of all, more votes.

In the new, networked society, anyone can be a "star". Anyone can build herself a website, anyone can publish his photos, videos, and writings on the web. The evolution of Web.2 made the earlier one-way mass communication desperately interactive. The new form of self-express in the interactive, networked, mediatized society, is the blog: spreading like a wildfire.

The blog, being a diary, is par excellence the most personal part of private life. The activity of a leading politician is par excellence a central part of public life. What happens if the two are interconnected? What benefits do politicians hope from blogging? How deep they allow the public to step into their private lives? Is blogging only beneficial or is it risky as well? Do we want political leaders who open their family house doors wide to us, or do we want them to be more than just a boy or girl from the neighboring door? This paper is an attempt to answer these questions.

*Blog: a spin doctors' dream*

There are hundreds of newspaper articles trying to convince politicians, or rather politicians' advisors, that blog should be an essential part of their image campaigns or even of their daily political work.

Loic Le Meur, the French blogger and blog-guru listed 10 reasons why a politician should blog:

1. To get closer to their audience, their supporters
2. To create a permanent open debate with them
3. To test their ideas easily and quickly, to enrich them and get new ones
4. To switch the way they talk to people usually from institutional to more personal
5. To better understand the criticism of the people against their ideas
6. To spread their ideas easily if they are supported by many people, in a decentralized way
7. To raise funds for their cause, party or campaign
8. To reach a younger audience and help young people get more interested in politics
9. To create around them network effects
10. To become famous if you are an unkown politician, or to start a political action, even locally

It seems that lots of politicians share the idea that, in the 21st century, *blogare necesse est*. To mention just a few political top leaders who have blogs: Gordon Brown, Nicolas Sarkozy, and José Luis Rodriguez Zapatero have blogs, while Angela Merkel has a video blog. The Hungarian Prime Minister, Ferenc Gyurcsány is also an enthusiastic blogger. But also Howard Dean, Wesley Clark, and Junichiro Koizumi, the previous Japanese Prime Minister used to have blogs as well. And, of course, there are hundreds or thousands of blogging ministers, senators, MPs and mayors around the world.

There is nothing surprising in the fact that politicians want to use any new tools to publish their views, to reach their constituents, even if virtually, and to inform them about their work. But these purposes can be achieved also with other, more traditional methods: via newsletters, forums, etc. Why is blogging so important then?

*Politics in late 20th and early 21st century: the sense of democratic deficit*

Political analysts paint a rather dark picture about what we are living in. Voters' turnout declines at elections, and party loyalty is decreasing. The political system is stagnant and reactive rather than proactive in the Western societies. Citizens do not feel they are involved into a larger democratic project, and it leads to the rise of "a corrosive climate of cynicism" (Dahlgren 2001).

Ever since mass communication had spread and started to play an essential role in politics, the new technologies were accused of being strongly commercialized, and so constraining rational discussions as well as trivializing politics. Sharing Habermas' ideas, Daniel Boorstin (1962, 204) claimed that commercialized politics expresses „a world where the image, more interesting then the original, has itself become the original. The shadow has become the substance." He saw mass media being full of unreal, unauthentic, manufactured happenings, synthetic novelties, pseudo-events, as he called them. According to him, newsgathering turned to newsmaking.

In the last decades mass media have gained extraordinary power. As a natural consequence, the requirements of mass media infiltrated politics in such a measure that the main features of nowadays politics were developed by the requirements of media. Mazzoleni (2002) characterizes this deeply mediatized politics with personalization, spectacularization, tabloidization. This kind of "performance politics" (McNair 1995) or "packaged politics" (Norris 2000) gives the fear to many that voters will be turned off because of the lack of face-to-face communication, and that horse-race journalism as well as the general practice to highlight negative news lead to the oversimplification and trivialization of political communication. All this not only increases cynicism but also undermines the democratic legitimacy of representative bodies. Perhaps the most telling sign of the decline of the spin-era is how strongly the British Labours try to dissociate themselves from the spin-culture.

Meanwhile the order of "political pundits" appeared on the scene. They are those experts and journalists who regularly explain and comment political news. Nimmo and Combs (1992) describes them as "priests, oracles, bards, and soothsayers" who make symbolic healing, i.e. they give guidance to people when something extraordinary, strange is happening, and people need help to learn and map the new situation. The pundits behave as if they had a secret knowledge that privileges them to speak.

At the beginning the Internet was celebrated as a new source of information, which may be an important tool for democracy. But, according to Lasch (1990) nowadays democracy requires public debate not information.

Considering the general apathy towards mediatized politics, blog, may be a narrow path out of the jungle of mediated, selected and oversimplified information.

*Blog: the promise of a new political honesty?*

Theoretically, blog could be a great tool to change the political climate. It has three major benefits: directness, interactivity, and personality.

Its directness gives politicians the opportunity to bypass the media's selecting processes and get out their own message, unedited, in full length with all the important details. They can form the text as they want to, they can highlight what they want to. They can be "pundits" themselves and explain the voters directly what they do and why they do things. They can even publish "half-official" news via blog. They can prove that they really mean what Pitcher (2003) sees a necessary condition to decrease the apathy and to gain back trust of the voters: that "honesty is the new spin", and it is not what you claim but how you behave.

Interactivity is the other big advantage. Needless to say, politicians are eager to reach their constituents. But in the 21st century, when interactivity has become a natural part of TV shows and radio programs, and anyone can publish their ideas via SMS messages sent to news channels, it is not enough. Voters want to tell their problems, ask their questions, and debate the politicians' agendas. It can be done via e-mail as well, but that lacks the feeling of being a part of a human community. Comments to blog items, and comments to comments, looks a perfect virtual imitation of a real face-to-face forum with the voters.

Politicians can get a quick feedback about their activity and plans, and they can learn the voters' opinions. The virtual communities evolving from the regular readers of the blog can be very effective in mobilizing also those who are not part of the blog-network.

A blog is definitely more personal a way to communicate with the voters than the traditional party meetings and forums, not to speak about the official TV performances and press conferences. Not only the style but also the topics are more variable. Besides the political messages, blog is perfect to introduce the politician as an "ordinary person" who has thoughts about arts and books, has favorite musicians and athletes, and has a life like any of us. It is actually a way to create the "official yellow press" news, with all the advantages communicational advisors see in popular media news but without the risky challenge one always must take when appearing in yellow press magazines. In addition, blog offers the possibility to illustrate the text with pictures, and the author can freely concentrate only on one particular topic, however. Briefly, blog as a new ICT genre, is exactly what mediatized politics needs: it is highly personalized, tabloid, and spectacular, in addition the author has a full control over the content and can avoid the traps of being present in yellow press.

The free mixing of formal and informal topics and styles provides a possibility to fulfill the requirements of the new, lifestyle politics, which is strongly personalized, and the emphasis is put on single issues rather than platforms or ideologies (Dahlgren 2001).

*Blog: a rather risky business?*

Has a new tool evolved which works like a magic wand, and is able to change the political climate? Sounds too good to be true.

The major problem with politics today seems to be the apathy of voters caused by discredit. People find mediatized politics highly manipulative, and they know the news are spinned for the media. Considering this, it is obvious, that a politician's blog can gain back some trust only if people do not feel, the only reason why the politician has the blog is to manipulate the readers. It involves, I think, that the politician has to write her or his own blog. It is, nevertheless, a rather time consuming activity.

The other advantage of blogging could be that it provides a channel to announce new ideas and plans. But because of the relatively law internet penetration traditional media are still the main source of news. The blog must be regularly refreshed, and also interesting for readers and journalists to be worth to read, and to generate a snow ball effect, and to get out the messages to other, more frequented news sources. All this sound similar to traditional media planning.

What do people think about blogging politicians? According to a representative survey carried out in October 2006 in Hungary by NRC which is specialized in internet and online research, trustworthiness is the most important in political blogs. The majority of informants think that politicians write blogs to share their ideas with the voters, but one third find blogging nothing but self marketing. Most of the informants dislike if a piece of important information is published first in a blog.

As it seems, the blogger probably need to choose between being trustworthy or interesting. Anyway, one advantage is lost at this point.

Interactivity is important – but does blogging provide real interactivity? Sunstein (2001) warned that "new technologies, emphatically including the Internet, are dramatically increasing people's ability to hear echoes of their own voices and to wall themselves off from others". This warning must be taken seriously considering the discussions in blog comments.

When blog forum debates are moderated, strongly critical comments are often taken out from the discussion. This method obviously creates a distorted mirror for the blogger, and paints a rosy picture about his or her support. On the other hand, if blog forums are not moderated, supporters of other political parties or groups may be very frequent visitors writing harsh or even extremely rude messages, the same person often under more than one nicknames. This is nevertheless misleading, too, but has a worse consequence creating a disparaged image of the blogger to the world.

The author should follow the comments and explain his or her views about them. Otherwise visitors may think that the blogger opened but a fake debate. Again, reading the comments and answering them take lots of times, maybe too much to be worth to have a blog.

No doubt, blog forums, as well as other internet forums, could contribute to democracy providing an open channel to share opinions and ideas. However, in my view, it cannot work if participants of the debates hide their names behind nicknames, since freedom of speech is not connected to responsibility in these cases.

After a closer look, blog forum's interactivity did not live up to our expectations.

How about the third advantageous feature, the personal tone and the possibility to send out controlled yellow press messages?

First, it is not easy at all, to find a balance of being formal and informal. What topics are worth to write about? Books, theater, concerts, sports, leisure activities, recipes, family, or friends? Should also the informal content transfer a political message, like presenting an attitude, or thoughts in connection to the topic? Should the style be ironic, sophisticated, full of humor or smart and educated? It is not an easy task to be a good writer, and wrong choices may be interpreted not simply as bad style but as a sign of a pompous or a ragged personality.

Second, it is not sure that voters really want to watch a reality show about politicians.
Democracy means to many that the more a politician is like the girl or boy from the next door, the better. But many others expect someone representing them to be more respectful, more educated, etc.

Blogging is a hard job. Not surprising that according to the above mentioned survey just as many people told they found a politician more sympathetic after having read his/her blog, as many people stated the opposite.

Summing up: what is needed to be a successful politician blogger? Write your own blog yourself. Take the time to follow and answer comments. Find interesting topics and try to reach the mass media to generate a snowball effect but avoid announcing important news first in your blog. Be informal and original but stay sophisticated and respectable. Choose always the appropriate style, and do not let yourself misled by either outrageous or coaxing comments.

In addition, consider that you compete with hundreds or thousands of blogs and plenty of other kinds of infotainment tools. And know that one bad-formed sentence may mean the end of your political career.

As a conclusion, I do not want to suggest that it is not worth for politicians to blog. However, I think, the uncritical enthusiasm for blogs is unfounded. Blog seems to be an appropriate tool to strengthen

one's own supporters among certain conditions, but we are definitely far from the time when traditional personal meetings and mass media performances would be replaced for virtual debates and self-made yellow press news.

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**Henrik Schneider**

# 5C = CONVERGENCE AND COMMUNITY CONTENT CREATION/ CONSUMPTION: PROPOSING A NEW CONCEPT FOR THE FUTURE OF COLLECTIVE CREATIVITY

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## Introduction

The convergence of telecommunication and media technologies is an ongoing reality. Service coverage overreaches the previously impenetrable walls of technical platforms. Parallel to this, the world of content creation also undergoes a dramatic change. Millions of users participate in the world of community content creation via various forms of their own pieces of work.

The concurrent trends of technology convergence and growing community content creation offer a wonderful opportunity to the society of the 21st Century. The cross-platform ability to create, share and consume user created content adds a new dimension on how we interact with each other. This creates a new rich form of communication channel for individual and communities. For sharing experiences, gathering knowledge and fostering collective creativity. For opening windows to different cultures with the possibility of a never before seen depth of understanding. All this without having to worry about the different platforms on the content creation or consumption sides. Saving time and energy for the creative content creation. This paper is aimed at analyzing the coalesce of technology and content through introducing a new concept for the future of collective creativity: 5C = Convergence and Community Content Creation/ Consumption. I will first look at the most relevant aspects of the two directing trends (technology convergence and community content), then detail the interrelations of the two via the 5C concept.

## 1. Bits and bytes of convergence

We are surrounded by many telecommunications devices and networks. Presently most of the time each of these serve a different function. In many of our households we have television, cable TV, satellite dish, mobile phone, wireline phone, internet connection, computer, radio, DVD player and so on. One of the interesting telecommunication trends of our time is the convergence of these devices, networks and service providers. We can use devices for multiple purposes (e.g. watch TV on a mobile phone or make a phone call on computer). Devices are also able to connect to and communicate with each other, albeit standalone, automated, interactive functionalities are presently very rare. The networks are used for multiple connectivity options (e.g. serving internet connection and phone service through the cable TV network). And service providers competing each other at territories which earlier belonged only to one of them (e.g. an Internet Service Provider (ISP) can compete with a cable TV service provider with an IPTV offer and vice versa, the latter also offers internet access through its network). Most of the time as we use services and devices we might not even be aware of the interconnectivity and exchangeability of these devices, networks and service providers.

There are several layers of operation and interoperation for these technologies to work smoothly together. It has to work both at small scale personal level and large scale infrastructure interconnection level. One of most fundamental concepts in this new setup is

the Personal Area Network (PAN). It is a set of user controlled "smart peripherals" that are able to connect to each other, work together and share some of their resources (e.g. network connection), while also being able to operate on their own[1]. A PAN should also offer automatic service and resource discovery and reconfiguration. The PAN elements are located in the immediate premises of the user, while the concept of Personal Network (PN) goes one step further, by eliminating the requirement of physical closeness[2]. In PN's the devices might be in huge geographical distances from each other[3] and the network connection is managed through logically linked the devices, possibly through various interconnecting infrastructures. Furthermore the PN configuration offers an opportunity to directly connect[4] pieces of different PN's, which is called Personal Network Federation (PN-F)[5].

For the devices to be able to communicate with each other and connect to different infrastructures there are several technical and service provision challenges to overcome. And all this gets even more complicated while being on the road, which is not an unlikely scenario as the mobile phone is one of the most used telecommunications equipment of our time. Continuous, or at least regular, network access has to be present[6]. One of the options is to sign up with an ease to access service provider with wide coverage area, which in most cases means mobile networks. But that solution still limits movement while roaming internationally[7]. The problem could also be solved with open access networks, but that is limited too, namely by availability. Broadband open access networks are highly concentrated at well developed metropolitan areas, the presently best available WLAN technology is quite limited by range and the superseding WiMax is not yet spread enough. That would again leave the mobile networks as the primary solution, but not surprisingly service providers are rather reluctant to provide open access to UMTS. Solving the nearly-always-on access barrier is one of the most important factors of the mobile telecom convergence.

## 2. Elements of community content creation and content consumption

For many years the participation in online content publishing has been the privilege of the wealthy and the techno-geeks. With the arrival of ease to use and free online publishing tools this has changed dramatically. Previously passive content consumers got a chance to publicly share their thoughts through text, pictures, audio or video. This and connected online advancements are regularly referred to as Web2.0: "Harnessing Collective Intelligence", a phrase attributed to Tim O'Reilly. Leading platforms of content sharing is the blog and the wiki. A blog is a series of time-stamped articles displayed on a webpage, published and edited by one person or a group of people, regularly reflecting a consistent point of view through a series of entries. Subjects can range from a personal life journal to personal journalism intended to complement or sometimes even challenge the mainstream media. A wiki is almost an inside out blog, containing well defined articles that can be edited by all members of a particular online community. This structure allows an in depth and continuously evolving view on these articles[8]. When one needs help repeatedly within a certain field, a wiki makes it

[1] Ramjee Prasad, "Personal Networks", Telektronnik, Vol 103, No 1, 2007, pp 1-3.
[2] Ibid.
[3] E.g. the user's mobile phone is in the her/his hand, while a computer attached to the PN might be located at home or at a server park.
[4] The direct communication of PN elements is generally referred to as ad-hoc scenario, while more permanent linkages through interconnecting infrastructures is generally referred to as infrastructure scenario.
[5] Luis Sanchez, Jorge Lanza, Luis Muñoz, „Extending Private Personal Area Networks to Personal Network Federations in Heterogeneous Ad Hoc Scenarios", Telektronnik, Vol 103, No 1, 2007, pp 34-44.
[6] Especially if the PN incorporates distant devices.
[7] Even with giant international telecom service providers
[8] See Wikipedia [wikipedia.org] as a free, successful example

easier to identify electronic locations to revisit to check out the current state of shared knowledge and to articulate one's own ideas or questions.

Beside the ability to share ideas, one of the leading components of this revolution is the possibility of conversation. This can be achieved by users either commenting or contributing[9] directly to the original content, or in other case linking from own articles to materials published by others. These communications channels made it possible for a network of shared creativity to emerge and avoided the development of hermetically separated ivory towers, which would have had eroded communication between users. It is still important to point out that majority of the users are passive receivers of the shared information and only minority of the users are active content contributors. Presently the three major obstacles of the conversation is firstly the hardness of finding the relevant voices in the online cacophony of millions of community contributed spaces; secondly the barriers of languages; and thirdly the censorship of publishing and access.

Online knowledge sharing community practices are not just for fun and not just for the sake of personal or collective communication. For example corporate knowledge management also has a lot to learn from them, applying these experiences in a workspace environment[10]. And a computer is not the only way to access and contribute to these spaces, as the mobile phone is getting to be a more and more important piece of equipment for content provisioning and consumption[11].

## 3. The 5C concept

The two independent trends of technological convergence and community content creation could and will overlap as illustrated on Figure 1:

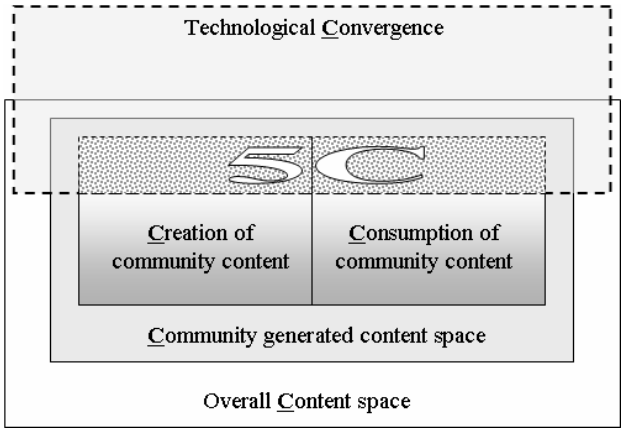


*Figure 1. Overview of the 5C concept element relations*

The converging telecommunication space will not only be populated by professional media companies. The case of online community content sharing will get huge benefits from the availability of easy-to-use, wide-ranging new tool both for content creation and consumption.

[9] The option of direct contribution is a wiki feature that is rarely available with blogs, where commenting is much more common.

[10] Henrik Schneider, „Rapid ICT Change and Workplace KnowledgeObsolescence", Harvard Law School's Berkman Center Research PublicationSeries, Vol 2005 No. 04, Cambridge USA, 2005, pp. 1-45

[11] E.g. about possibility of using the mobile phone in citizen media community content environments see: Henrik Schneider, "The reporting Mobile" in Kristóf Nyíri (ed.), *Mobile Studies*, , Vienna: Passagen Verlag, 2007, pp 159-169.

The fundamentals of the 5C concept bring forward three main future benefits: greater platform independence, wider audience base and better support of creative remixing.

Firstly, in a new convergent telecommunication environment the creation platform of the user content should not necessary be the same as the consuming side platform, all this without burdening the author with complicated technical converting tasks. This option partially is already available nowadays, e.g. photos captured with a mobile phone can be uploaded directly to web space where these instantly can be observed on a computer. The 5C concept goes one step further. It offers users greater platform independence, e.g. an interview recorded with a digital camera can be uploaded to a content repositories (common domains) which can be accessed by various different devices, raging from TV sets to portable video players or mobile phones. The platform independence means that the author will not have to adapt to the access methods user will utilize for content consumption.

In these scenarios two very important technical details have to be solved. To access content on a device that was captured using a very different platform[12] is a challenge that has to be automatically solved on the content repository side. Based on the type and capability of an access device the digital content repositories automatically have to provide a version that is feasible for play in that environment. This centralized solution eliminates the need for each device to be able to play every possible format, because this would be a requirement that is practically impossible to comply to. This way 5C concept offers the individual devices[13] the option of specialization on formats that are best suited for their specifications. The other technical prerequisite that has to be solved is the method of access, as all devices where such content should be recorded or played has to be part of a Personal Networked detailed in section 1. Without network access, no recording can be entered to or retrieved from the repositories.

It is also important to note that for the sake of independent and free communication of ideas the number of repositories should be one, but several. At first glance this separation of content would limit the ease of finding relevant pieces, but the World Wide Web showed that search engines, linkage services and content aggregators do a great job in aiding the location of information. It is also important to remark, that with the utilization of PN-Federations it is very well possible to avoid centralized repositories for communication not intended to share with greater public. Public and private content sharing is both a valid option as illustrated on Figure 2, but that is much more a field of personal communication rather that community content sharing.

[12] E.g. different resolution, recording formats, etc.
[13] And of course device manufacturers

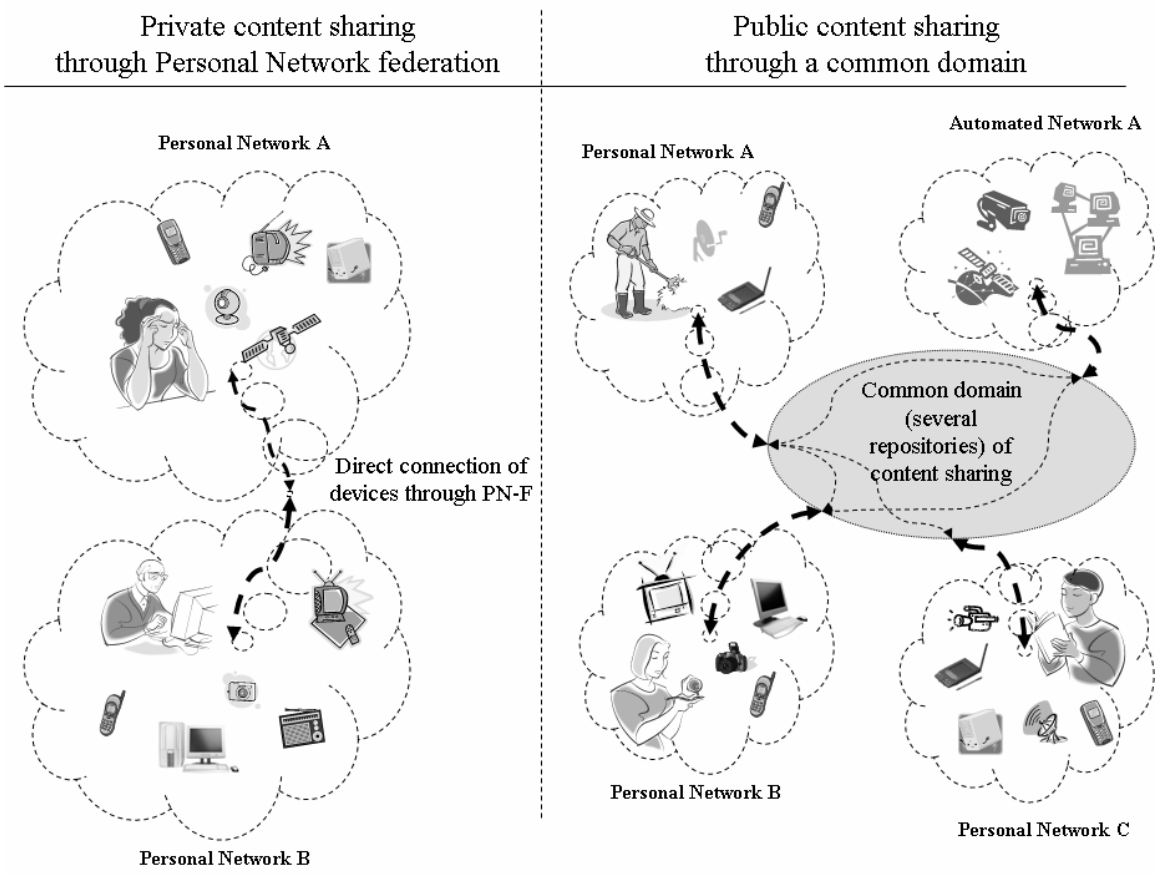


*Figure 2. Private and public means of convergent communication*

The second advancement 5C gives is wider reach of audiences to community content authors, which is a neutral consequence of platform independence. As all type of content can be access through all player devices, user habits of equipment preference have much more limited effect on the possibility of content access, as opposed to the status quo of online community content sharing. On its own the 5C concept do not solve the problems of multilingual access, unless a revolution is made at automated translation that could be built into the common domains (repositories) of content sharing.

And finally, the 5C concept fosters the use of collective creativity. Not only by giving content producers greater determination by offering better options of being noticed. As the content being accessed by wider audiences at platform independent means, there is also much higher chance of finding authors who are willing to add value by lawfully remixing-reediting the originals into new pieces. This is a debated area, especially from a legal (copyright) perspective, although these issues originate much more from the professional media content producers than shared community content environments. Still there is both supply and demand of content reediting into forms that give new value even to the originals, if the necessary rights are handled well both at the side of the author and the re-producer[14]. Also the ability to contribute comments and connected information[15] to pieces is another great way to open and encourage cross-platform conversations, that has been unprecedented before.

[14] A nice example of such legal initiative is Creative Commons, see. creativecommons.org
[15] Links, description tags etc.

## 4. Going forward

There are still years before the 5C concept can show its effectiveness in practice. Devices have to be able to operate in PN and PN-F environments and the PN's access to wider networks have to be guaranteed in a much flexibly and free way as today. The standards of the common content sharing domains have to be carefully detailed. There is also room for improvement in the usage of multimedia in community content production environments. Still, these steps forward are not centuries away, all of these options are individually technological feasibly today, and the wide scale common usage breakthrough is inevitable. Both trends are a reality, their union will be a matter-of-course and in their intersection we will find the opportunities outlined by the 5C concept.

Iren Schulz (M.A.)

**"Bridging uncertainty". Mobile communication in the context of social networks, developmental conditions and media arrangements during adolescence.**

Being happy and sad at the same time, feeling lonely while sitting together with friends, not knowing who I am and who I want to be -the time of adolescence is characterised by curiosity and vitality towards new experiences and simultaneously by doubts and uncertainty concerning the perception of self in relationships. Young persons have to deal with physical and cognitive changes but especially with social issues. One of the most important social tasks of adolescence is to obtain and differentiate new relationships with peers of both sexes and to transform the relation to parents into a more grown-up connection (Oerter & Dreher 1998). Processes of communication and interaction are essential for dealing with challenges and for establishing relational structures and dynamics. Against this background adolescent relationships can be conceptualized as dynamic social networks of negotiated meanings: "Since meanings provide the basis for individual and collective actions, people's meanings will have consequences for their actions, the production of social structures, and changes within those structures. […] Understanding actor's meaning is fundamental to any analyse of social structure." (Fine & Kleinman 1983:98).
Within these communication processes, media play an important role for constituting a communicative net of social relationships and at the same time for expressing one's identity and exchanging views and experiences inside this network. Numerous studies prove the importance of media for adolescents concerning these issues: "The more personal freedom and unsupervised leisure time children and youth have, the more they spend time outside home and with their friends and the more they use media together with their friends." (Suoninen 2001:203) In order to demonstrate their belonging to a specific peer-group or aiming at a certain kind of status or connectedness, adolescents use media together or talk about it with peers, share media content or communicate by media (Baacke et al. 1991; Suoninen 2001, MPFS 2006). They are interested in music, computer games, movies and TV shows, but also in portable media devices like mp3-players, game consoles and especially the mobile phone that incorporates all these contents and functions. Related research is primarily focusing on the text message service, the telephone- and the camera-function and describes its impact on peer-relationships (Döring et. al 2006; Höflich et al. 2003; Oksman & Turtiainen 2004).Research connecting developmental issues from the perspective of one adolescent in his/her net of different relationships with the use of media and with the structure of everyday life could open further perspectives on the impact of mobile communication.
The project, thus, attempts to answer the following question: Regarding to which relational structures and meanings is the mobile phone used in the everyday life of adolescents, for which reason, in which way and in which context? The paper focuses on three important kinds of adolescent relationships, describes its functions and examines the nature of occurring communication processes. Based on empirical findings from an ongoing qualitative investigation with three natural groups of adolescents aged 13 to 17 it is analysed how different forms and patterns of communication characterised by mobile phone use materialize in adolescent relationships. Social contexts, the structure of everyday life and the use of other media are taken into account. Subsequently, theoretical implications as well as practical issues that refer to legal protection of minors and media education will be discussed.

**1 Sharing mobile content as a strategic ritual of participation in peer-relations**

Peer-relations are informal, mostly same-sex ties between adolescents at about the same age. They are contracted voluntarily and shaped through collective activities. Peer-relations can be considered the frame of action, in which adolescents deal with developmental issues like forming a gender-specific identity or achieving a certain kind of appreciation or standing. Within these relationships adolescents are able to try out different roles and to break boundaries they had to accept during childhood (Oerter & Dreher 1998). Peer-relations are negotiated through continuous communicative interactions like routines of demonstrating status, trying to stand out from others or renegotiating levels of membership (Neumann-Braun et al. 2002). "Everyday activities in preadolescent and adolescent culture enable peers to negotiate and explore a wide range of norms regarding: personal appearance and the presentation of self, friendship processes, heterosexual relations, and personal aspirations and achievement." (Corsaro & Eder 1990:215).
Against the background of the peer-relations described above, adolescents exchange pictures, animations and video content by using the Bluetooth function of their mobile phones[1]. The shared content refers to favourite

[1] Bluetooth is a wireless and free phone-to-phone transmission function.

music stars, TV shows or films as well as content that deals with everyday life situations, but also with sexuality or violence. Typical sharing situations are during and after school, while waiting together at the bus stop or spending time together at parties or other weekend activities.
Considering the process of communication itself, adolescents are in the position to obtain almost every picture, photo or video clip they want from another mobile phone owner. And getting it subsequently means passing it on to the next person in the network. Looking at the content of communication one can say that the person who is able to acquire the funniest, most embarrassing or even most violent pictures or video clips is considered the coolest, most admired member of the peer group, With regard to rather problematic content like pornography or videos, where animals or human beings are being tortured or killed, it appears that male adolescents particularly use these contents to acquire acceptance within their peer-group and to develop their male gender identity.
Hence, these communication processes can be described as strategic rituals of interaction. They are not confined to the communication between two adolescents, but are directed towards the integration of one person into the net of peer-relations. In doing so, the process of sharing itself is more important than the content that is shared. Adolescents who do not own a mobile phone with Bluetooth feature are therefore excluded from an important ritual that interlinks peer-relations. Thus, participation in peer-relations materializes in a dynamic and continuous exchange of mobile content.

**2 Mediated interpersonal communication as a short-term connection in close friendships**
Close friendships during adolescence are characterized by strong and enduring ties with clear boundaries to others and at the same time deep and emotional connections with a special quality of trust. „During adolescence best friendship are also increasingly valued as a source of mutual intimacy. Many adolescents report that their best friendships are characterized by acceptance, understanding, self-disclosure, and mutual advice." (Corsaro & Eder 1990:207) Thus, communicative actions like talking about school topics, making appointments, sharing secrets or overcoming difficulties together mirror the manifold and often very intimate character of this relationship. Generally, close friendships in adolescence emerge in school. They are embedded in the structure of the school context and can be characterised by continuous and intensive face-to-face contact in and around school time (Barthelmes & Sander 1997; Kolip 1993).
The interpersonal communication by mobile phone becomes especially important at times when school structures are missing, for instance after school and especially during school vacation. The mobile phone then bridges missing face-to-face contacts. To perpetuate the connection and to ensure, that the other person is still thinking of them, adolescents send text messages or signal somebody – that means calling a friend, who leaves his mobile phone ringing without the intention to pick up. To reply to this special signal, the friend calls back in the same way. Just as continuity, intimacy and reciprocity are characteristics of close friendships, the same is expected from mediated interpersonal communication with mobile phones in these relationships as well.
If the school context is missing for a longer time or even completely, for instance when one friend has to change school or moves to another city, mediated interpersonal communication by mobile phone will not be sufficient to sustain the special quality of close friendships. Adolescents need continuous and intensive face-to-face contact to maintain such relationships. Compared to the importance of the school context, the mobile phone offers an additional but not sufficient means of staying connected in this kind of relationship.

**3 Communicative rules and mobile phone use in romantic relationships**
Romantic relationships in adolescence usually evolve within peer-relationships, where adolescents experience their first sexual encounters, differentiate their gender identity and develop an idea of future adult partnerships. Against this background first romantic relationships in adolescence can be described as a kind of "clumsy experiment": „In these beginning relationships, the focus is not on the nature of the relationship or the fulfillment of various needs, but on who the partner is, the partner's attractiveness, how they should interact in a romantic context and what their peers think of the relationship." (Furman & Simon 1998: 734, c.f. Brown 1998). Consequently these partnerships do not last longer than a view days or weeks. Communicative actions aim at creating a safe space away from parental influence and provide occasions to get closer to one another. Playful patterns of communication are used to set somebody up or to tease somebody, but are also utilized to hold hands, smooch or meet up. (Lenz 1989:69) While these interactions are characterised by happiness, adolescents at the same time deal with doubts, uncertainties and fears concerning romantic relationships. These feelings and questions are then discussed in close friendships and peer-relations (Barthelmes & Sander 1997).

The mobile phone plays an important role in adolescent partnerships, especially when initiating or ending that relationship. As for the initiation, mobile phone communication takes a specific position between other forms of mediated interpersonal communication and face-to-face situations. The data reveals numerous examples that portray the rituals behind the use of internet chat, mobile phone and home phone to get to know and interact with a girl- or boyfriend. For instance: one girl got to know a boy in an internet chat room. After some time, they exchange their mobile phone numbers. Then it is expected from the boy, that he initiates the more intimate communication by sending text messages. This communication channel provides male adolescents with the possibility to show sympathy while remaining in a secure distance. After the first date it is also allowed to call the girl on her mobile phone. Numbers of home phones are rarely exchanged and if so, only in partnerships that lasted for a longer time with the knowledge of the parents. When one of the partner intents to end the relationship, communication is getting more and more distant. Especially the boys but also the girls use text messages to resolve the bond. Those messages are not replied by the addressee. While the intimate communication by mobile phone discontinues, chat communication might go on.
This example demonstrates the embeddedness of mobile communication in the use of other forms of mediated interpersonal communication and in face-to-face communication. Within these interactions, the use of the mobile phone discloses and closes intimate spaces. By doing so, adolescents create a certain kind of "distant nearness" in their partnerships.

**Conclusion**

It is crucial to point out that the investigation of mediated communication with the mobile phone has to be reflected against the background of specific relationships, their structures and negotiated meanings from the perspective of the individual. Peer-Relations, best friends and romantic relationships as part of a social network are characterised by different interaction patterns embedded in the structure of adolescent everyday life as well as different expectations and modes of action referring to several developmental concerns. The mobile phone is used against this background which results in modified and new forms of interaction. Moreover, communication with the mobile phone is not only embedded in developmental and everyday life contexts, but also in the use of other media. As an indispensable, personal and multifunctional medium, the mobile phone holds an important position within media arrangements and constitutes communication processes in adolescent relationships together with the use of, for instance, internet chat or landline phone. Theoretical conceptualisations of mobile communication have to take these social and mediated contexts into account. With regard to pedagogic implications, the use of the mobile phone in adolescence leads to new questions of legal protection and encouragement of media literacy. One evident example is the exchange of problematic mobile content in peer-relations. Because of the Bluetooth function every potential mobile phone owner – even children! – might be an addressee and user of pictures or video clips dealing with pornography, violence or problematic political content. These processes of sharing refer to the individual communication between two persons without any professional provider. It takes one click only to get what somebody wants and when he or she wants it. Current laws, regulations and guidelines do not overlook these private and intimate communication processes. For this reason, the encouragement of a critical and reflected use of new communication technologies becomes more and more important not only for children and adolescents, but specifically for parents, teachers and other pedagogues as well as providers of technologies and services!

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# The Streaming Body as the Site of Telecommunications Convergence

## Introduction

On February 23d, 2007, at the time of the Academy Awards, the *New York* Times published on its Web site a multi-media reportage called "All The Body's a Stage," by Perry Chen and Aviva Yael.[1] It featured photographs of the bodies, or rather body parts (primarily arms), of Americans containing tattoos of media celebrities, including Halle Berry as Catwoman, TV talk show host Conan O'Brien, Jack Nicholson in *The Shining*, movie actor Will Ferrell, comedians Rodney Dangerfield and Pee-Wee Herman, and martial arts movie actor Bruce Lee. Through getting tattooed, these individuals had had media images and symbols "written on their bodies", to use a concept that has come to play a major role in postmodernist and feminist theory. Alternatively, one could say that the media wrote these images on their bodies, through the intermediary of the featured tattoo artists Kyle Kotterman, Nikko, Dan Plumley, Tattoo Andy, Bob Tyrell, and Jay Wheeler.

## Syncing and Streaming

Awareness of the impact of the media on the mind, consciousness, behavior, and the self is of course more than half a century old. But if, in the framework of phenomenological philosophy, we understand the mind, consciousness, behavior, and the self as aspects of a human being who is at root an irreducibly bodily being, then media phenomena that highlight the bodily will strike our attention with special force. In this paper we will emphasize such phenomena as part of a theory of telecommunications and media convergence with a strong phenomenological orientation. For all around us are examples of people "syncing" their bodies to and through media: the most widely known recent example is Apple's advertisements for the iPod, in which individuals plugged into their iPods are moving their bodies wildly but rhythmically to music that is streaming into them through their headphones. Some of this bodily syncing is relatively direct, as in the iPod ad or as when travelers carry out exercise routines in their hotel rooms to exercise video podcasts that they have downloaded to their iPod or to exercise DVD's that they play on their laptops. But it also takes on indirect forms. For example, when girls feel encouraged to take up anorexia because they emulate role models portrayed in various media or because they frequent pro-anorexia Web sites or when people eat food that they have prepared while following a TV cooking program, bodily syncing is also taking place.

However, syncing is only half the picture. Individuals are not only the recipients of media images and other information that mold their bodies. Their bodies are not merely passive objects of the media. Even the individuals with the celebrity tattoos made an aesthetic, lifestyle, and bodily choice to have their bodies written on or synced with the media in that manner. More importantly, however, individuals also "stream" their bodies: their bodies are also the active center from which their bodily experiences, feelings, desires, and concerns radiate out into the media and into everyday life in the form of images, information, and symbols. When people move through cyberspace via avatars or tell their mobile phone partners "I'm in the dairy section of the supermarket now", they are streaming bodily movements. When people post on specialized computer bulletin boards descriptions of their physical reactions to prescription medications in order to share them with and get advice from other users of these medications, they are streaming their

1 http://www.nytimes.com/packages/khtml/2007/02/22/opinion/20070223_TATTOO_FEATURE.html

bodily experience or "symptoms". When patients go to doctor's offices armed with printouts of Web pages about their conditions, they have both coordinated their bodies with publicly available medical information and are transmitting the synthesis of this media-derived information and their own personal condition into their everyday interaction with health practitioners.

On the Web site *Beautiful Agony*,[2] individuals post self-made videos of their face, head, and neck during orgasm, as well as of their experience of making these videos, their sexual histories, and sexual feelings, they are streaming intimate bodily experience that is also part of the core of their selves. The focus on the face on the *Beautiful Agony* site, which, in our opinion, differentiates these videos radically from pornography, brings out something important for our purposes that is central to phenomenology: that the "body" that is of concern here is not the body of mechanism, physicalism, or biology, a body that is an object among other objects or an "in-itself". Rather it is a lived body that is a self, an "I," a "for-itself."[3] The streaming orgasmic eyes are still, in the most traditional sense, the windows of the soul: but an embodied soul that is now streaming across the Internet and to which someone else watching it is syncing her/his own ensouled body (or embodied soul -- from a phenomenological point of view, these are fundamentally identical).

In a sense, the role of the streaming (and syncing) body in telecommunications has been with us from the start. If we follow Jonathan Turner's reconstruction of the evolution of human communication and sociality,[4] what distinguished human beings from our primate ancestors and relatives was the emergence of the communication of emotion through visual body language. For rather isolated, tree-dwelling primates, only the development of this kind of communication made possible the group co-ordination and co-operation that enabled survival under the conditions that prevailed on the African savanna, and attention to the most minute shifts in facial and bodily movement and expression along with the expansion of the repertoire for such shifts was its vehicle. The streaming and syncing of bodies is thus constitutive of the human species. While digital media represent a historically and technologically new form of such communication, they invoke and evoke a fundamental human capacity and orientation. This understanding was already conceptualized by Marshall McLuhan: the media are extensions of the body, but they also mediate and alter our bodily experience, at least in its perceptual experience.[5]

**The Lived Body as the Site of Convergence**

Our goal in this paper is to add to the current discourse on telecommunications convergence the notion of the streaming body as the site of that convergence. At present this discourse seems shaped primarily by two models or frameworks. The first is technical: convergence occurs through the convertibility and interoperability of data and networks. The second is cultural: convergence occurs among communities of users, who reshape, combine, link, or transform media content, whether these are programmers creating "mashups"[6] or fans who reshape and embellish media content as an act of cultural creativity within their communities.[7] We believe that there is a missing piece and propose that the site of

2 www.beautifulagony.com. Note that entry into this Web site requires payment of a fee.

3 Olafson, Frederick. A. What Is a Human Being? A Heideggerian View. Cambridge: Cambridge University Press, 1995.

4 Turner, Jonathan H. *On the Origins of Human Emotions: A Sociological Inquiry into the Evolution of Human Affect*. Stanford: Stanford University Press, 2000. See also Mithen, Steven. *The Singing Neanderthals: The Origins of Music, Language, Mind and Body*. London: Weidenfeld & Nicolson, 2005.

5 McLuhan, Marshall. *Understanding Media: The Extensions of Man*. New York: McGraw-Hill, 1964.

6 Lamb, Brian. "Dr. Mashup or, Why Educators Should Learn to Stop Worrying and Love the Remix." *EDUCAUSE Review*, July/August 2007, 13-24.

7 Jenkins, Henry. Convergence Culture: Where Old and New Media Collide. New York: New York University Press, 2006.

convergence is not merely in infrastructure or devices or in communities of users and creators but in the lived human body. For the human being who is the consumer and producer of digital media, it is the lived body that receives the wealth of images, sounds, and information; it is in the lived body that they are combined, transformed, and integrated; and it is the lived body that projects new images, sounds, and information out into the world.

The lived body is already theorized by phenomenology, particularly by Merleau-Ponty,[8] as the substratum of the stream of experience and as that through whose embodiment of technology the world is given to us.[9] Through telecommunications convergence the body is not only receptacle, context, container, battleground, emitter and integrator of streaming digital information but also a literally streaming body. That is, the continuous consumption, processing, recombining, reproduction, alteration, synthesis, and production of such information as corporeal, not only cognitive processes, transform the body itself into a dynamically unstable system, continually reshaping itself in response to the inflowing digital stream, producing new syntheses through lived bodily experience, and streaming out new versions of itself and these syntheses into the information environment.

**The Cyborg: a Creature of Convergences**

As we look historically within the social sciences, there is a considerable foundation for this way of thinking. One of the strongest metaphors in support of this conception of the lived body as the site of convergence is that of the cyborg figure. Although foreshadowed in science fiction literature and film, this figure began to leave its tracks on the landscape of the social sciences in the mid 1980s in the writing of Donna Haraway[10]. Haraway uses this constructed identity as a way to explore and illuminate the blurred boundaries between nature and technologically mediated culture. The cyborg figure illustrates the reality that we are inextricably bound to our technology, and that the body is the playing field or battleground for constantly emerging technological suggestions, inventions and interventions, which, in turn, necessitates a re-shaping of our cyborgian social environment.

Haraway's vision describes the potential for both horror and hope. Like Foucault, she can conceive of this convergence as an identity oppressed and manipulated by the power of systems like the American Medical Association, and large biomedical engineering corporations. Conversely, however, she can envision the cyborg as a democratized creature, empowered and freed from allegiances to traditional power structures.

Coming at the same metaphor from the perspective of cognitive science, Andy Clark makes the case that it is our unique ability to form complex relationships with non-biological tools, and to integrate them into our "problem-solving systems,"[11] that redefines human intelligence and makes it superior to the abilities of other natural creatures. He posits that our intelligence now partially resides in our tools, such that a computer crash is equivalent to a stroke in its immediate effects. Unlike Haraway, who as a biologist is more focused on the merging of various technologies into what Clark calls "the ancient biological skin-bag," Clark focuses on "new thinking systems" which compel us to create new "designer environments." [12] Like a hall of mirrors, he sees the creation and re-design of these environments

8 Merleau-Ponty, Maurice. Phenomenology of Perception. Translated by Colin J. Smith. London: Routledge, 1945/1962.

9 Ihde, Don. *Technology and the Lifeworld: From Garden to Earth*. Bloomington, IN: Indiana University Press, 1990.

10 Haraway, Donna J. *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge, 1991.

11 Clark, Andy. *Natural Born Cyborgs: Minds, Technology and the Future of Human Intelligence*. New York: Oxford University Press, 2003.

12 Ibid, page 198

speeding up because we are able to envision tools that adapt to the way our brains and bodies work during use, allowing the re-design of environments to progress exponentially.

As we see, the centrality of the body is being increasingly recognized in technology studies, in the social sciences in general, in cognitive science, and in philosophy. This comes in part from the internal development of those disciplines and from the important influence of Merleau-Ponty and Foucault as well as of feminist, queer, and cyborg theory. But it comes as well from generalized awareness of changes in lived bodily experience resulting from new technologies and new media -- from the ways in which they involve new bodily comportments, new senses of the body, and new imaginings of and by the body. Telecommunications convergence is not only a technological and industrial trend: it is something that we experience -- in our bodies. Anyone who has either watched or shared the bodily way of being-in-the-world of people working at computer terminals or crossing the street or riding the subway while listening to their iPods or driving while talking on their mobile phones or interacting in their family living room or neighborhood bar or pub while the TV is on knows of the altered sense of embodiment that accompanies these activities, and this sense enters into the intellectual perspective through which we conceptualize the world, including especially the technological and cultural changes that are part of convergence. We hope in this paper to have at least suggested the possible contribution that a phenomenologically grounded notion of the streaming body could make toward a philosophy of telecommunications convergence.

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www.nytimes.com/packages/khtml/2007/02/22/opinion/20070223_TATTOO_FEATURE.html

www.beautifulagony.com. *Note that entry into this Web site requires payment of a fee.

**Norrie Sinclair**

## JOB HUNTING, WITCH HUNTING, WATCH HUNTING

From time immemorial young men, and in some societies during the latter half of this millennium, young women, have marched forth in search of gainful employment; to feed their families, to develop skills that would help them build a successful career or, increasingly over the past 50 years, to be able to hand over the cash to buy the latest sports car.

In times past job hunting, not merely a useful metaphor, accurately described an arduous process the success of which very much relied on chasing down potential opportunities through limited numbers of press advertisements, directly approaching potential employers, using the services of middlemen (agencies), patronage or knocking on doors.

Today, a young jobseeker can sip a double latte in a Starbucks , whilst surfing on his PDA, he can access any of the 1000's of job boards and websites, displaying millions of job opportunities available in almost any country and even major city in the world.

How is modern technology benefiting the modern job hunter? What are the implications for the corporate world? How will the impact of this mass proliferation of job opportunities impact key demographic indicators such as workforce mobility across natural borders? And what are the broader implications for society as a whole?

## The impact of cognitive deficits in developing technological advances
## By Dr Ian Smythe

*Technology, like education, has an economic imperative. To solve the problems, it must accommodate the needs of the majority. But as the market becomes saturated, one attempts to fulfil the needs of the minorities. In mainstream computing, we can see that the standard computer with a standard word processor will be adequate for the 85% of the population that does not have some form of special needs. More recently the needs of those with cognitive deficits such as dyslexia have been addressed using text-to-speech and planning software (e.g. concept mapping) to help overcome their cognitive processing deficits. But what of the mobile technology? What are the cognitive deficits we should consider, and how do they impact upon the needs of the individual and the choices they make with respect to choosing and using the technology*? *Furthermore, how can the manufacturers improve their market share by addressing those needs?*

Technology is evolving rapidly, proving more and more functionality in a package that if ever decreasing in size. Technological redundancy is created by adding more capabilities, whether they are wanted or not. Success is measured by sales, and without the traditional product feedback of the fit for purpose by customers returning to purchase the same item again, there is little monitoring of the effectiveness of the technology in given user groups. Put another way, no matter how many focus groups you may have, if you send an invitation to a dyslexic individual, will they read it, and will the Asperger's individual want to come to a group meeting? So how can you cater for their needs? While clearly the issues are not so simple (most dyslexics can read though with difficulty, and may well want to attend such a focus group, if only they understood the invitation) they give a brief insight into some of the reasons why the current technology is ignoring a large portion of the population, especially those with cognitive deficits.

In order to provide a structure to the analysis of the issues, it is important to clarify terminology. The main special needs categories may be consider to be (UK SEN classification):

- Emotional, Behavioural and Social Differences
- Sensory difficulties (e.g. visual or hearing impairment)
- Physical difficulties
- Cognitive Difficulties

With respect to the technology, and in particular mobile technology, the first three have been covered to some extent elsewhere, but there has been little with respect to cognitive difficulties. The six main categories, and principle difficulties/disabilities, are as follows:

- General learning difficulties
  - Mental retardation
- Specific learning difficulties
  - Dyslexia
  - Dyscalculia
- Motor difficulties
  - Dyspraxia and Developmental Coordination Disorder
- Social and behavioural
  - Attention Deficit (Hyperactivity) Disorder (AD(H)D)
  - Aspergers Syndrome and Autism
- Mental disorders (eg Tourettes)
- Communication disorders
  - Specific language impairment and semantic pragmatic disorder

Of these, the ones that could arguably benefit most from greater consideration with respect to the implementation of the technology are the dyslexic, dyspraxic, and dyscalculic individuals. As it happens, these are also the biggest disability groups. This does not mean that those with other conditions would not benefit, but that the cognitive dysfunctions of these three groups are more clearly defined, making change more easy to implement.

While there is much debate over the causes of these problems, and the definitions are numerous, for the purposes of this analysis it is possible to consider the following as being succinct versions of our current understanding (Smythe, 2006):

> *Dyslexia is a difficulty in the acquisition of accurate and/or fluent word reading, spelling and writing that is neurological in origin.*
>
> *Dyscalculia is a difficulty in the acquisition of accurate and/or fluent mathematical skills that is neurological in origin.*
>
> *Dyspraxia is a difficulty in the development of fluent and/or accurate motor skills.*

The lack of consensus in all these area has severely limited research, and hampered support mechanisms. It has also created scepticism in some academics, certain parts of some support services and has occasionally provoked scepticism in the media. As a consequence many of those with these hidden handicaps are left to suffer when so much could be done at small initial cost and considerable long term savings. The European Dyslexia Association estimates that at least 4% of the population is severely dyslexic and a further 6% is mildly dyslexic. That means there are over 30 million dyslexics in Europe alone. While not all will want to buy a mobile phone, the financial implications on getting the technology right are obvious.

When it comes to discussing the relationship between those with cognitive deficits and the mobile technology, we can consider it from two perspectives:

1) Mobile choices – How people implicitly and explicitly make choices about the technology and how to use it, and the impact the disability has on making those choices.

2) Mobile potential – What is possible given today's technology.

**Mobile choices**

Although there has been no systematic research, anecdotal information suggests that those with cognitive difficulties do one of two things:

a) Buy a cheap phone as they never use the other functions.
b) Buy an expensive phone, but never use most of the functions.

In either case, the results are the same – they use few of the functions that currently exist. This may be due to one of several reasons, including:

a) They never knew it was there
    Because they forgot the salesman told them
    Because they never read the manual
b) They never worked out how to use it
    Because they could not read the manual instructions
    Because they could not understand the manual instructions
    Because they could not do what the manual said
    Because they did not want to ask anybody to show them

Many of these are problems encountered by non-dyslexic individuals. But these problems are encountered by most dyslexics as a direct consequence of their cognitive difficulties. Of course one of the implications of this is that if you help the dyslexic individuals, you will make life easier for many others as well. (Note that for simplicity, the difficulties of the dyslexic will be highlighted, but they are also often are a problem for the other groups.)

**Causes and cognitive demands**

One of the problems with understanding and diagnosing dyslexia is that while a definition can be presented as a series of symptoms, it is often necessary to identify the causes in order to provide appropriate support. Various hypotheses have been developed, but many suffer from one big drawback – they assume the cause is the same in all individuals. However, as any practitioner will testify, every dyslexic is different.

If we consider dyslexia as a reading and writing difficulty, we can identify four main cognitive areas that will impact upon literacy. That is, if any of these systems fail, then the individual will have reading and writing difficulties. These areas are:

Phonological manipulation skills
Orthographic manipulation skills
Memory (visual and auditory)
Motor skills

Details of the specificity of each of these are discussed elsewhere (see for example Smythe 2006). However, the way they specifically impact on the areas mentioned above requires some consideration with respect to the symptoms and the underlying causes.

Since reading is the fundamental problem, why would the dyslexic individual put themselves through the pain of struggling with the text, especially if they know the parts they need? Hence they will not be reading the manual, except by necessity. Even then, some of the terminology will be difficult to read and follow - the manual is often only understood by those who already know how to use the technology (e.g. the author!) Frequently a dyslexic individual will give up because they assume they have misread something and that the failure is theirs, rather than the books. Furthermore, to ask somebody else means you need to confess that you cannot read/understand the manual. For many dyslexics, the default defence mechanism is to keep quiet about ones difficulties.

The above tends to suggest that improved provision of information will provide all the solutions. This is not the case, though it clearly would have an impact. Although many of the specific cognitive difficulties of the dyslexic individual are reading related, some have a wider impact. A good example is short term auditory memory. This will cause difficulties with remembering the sales pitch, or a set of instructions. Many dyslexics will have a strategy to overcome this, such as a notebook or digital recorder. But who takes those to the shops?

So the question becomes, where is the easy to use multimedia presentation that leads you through all parts, reviewed by dyslexic focus groups? But again, due care and attention should be paid. Some phones have “tutorials” on the phones themselves. But visual memory difficulties may mean the dyslexic will see and understand on the video, but not be able to recall the necessary visual elements.

**Mobile potential**

The mobile phones have many functions whose development and used have been extensively documented elsewhere. The key areas of interest here are: as a two way voice communicator, written message communicator (email, MMS and SMS), music player, camera, storage device and as a digital sound recorder. As stand alone devices, there are few problems, if they can be accessed. However, the writing can be a problem, with predictive text being a major difficulty. Many dyslexics never find how to turn it off. With increased use of email on the mobile, the role of spellcheckers in this environment also increases.

Most of these functions are with respect to entertainment, and failure to use them will not have a major impact on peoples’ lives. However, as they become increasingly important in business and learning, over and above a simple phone, so a clear understanding of the difficulties and limitations it can bring, to ensure it is an enabling rather than disabling device.

The two main areas of specific interest to dyslexia to be reviewed here are:

Assistive technology
Learning software

Learning software teaches, and once the information is learned, we can discard that "CD". Assistive technology (in this case) software that is always required, since it assists rather than teaches. Of course it will assist the learning, but fundamentally it will always be required. Examples include:

*Text-to-speech:* This is technology that allows the individual to listen to text. There are many free versions available for computers and several for mobiles. They are excellent for dyslexics as it allows them to concentrate on understanding rather than trying to decode each word. Even text messages can be laborious for dyslexics to read. Built in technology would make it considerably easier for learning and for business use.

*Organisers:* Planning and organising structure is important and if usually a nightmare for dyslexics. However, the organisers that are available are rarely dyslexia friendly.

*Voice recognition:* This is now being introduced, particularly for dialling. It decreased the number of wrong keys being remembered or pushed. Availability as a separate item (e.g. for report writing) would enable the dyslexic individual to free themselves from the confines of the work environment, as well as the problem of reloading software at every workstation.

*Preferences*. Little attention is paid to the demands of the dyslexic individual. For many, reading reversed out text is problematic (e.g. white on blue), while other standard combinations provide different problems, including too much or too little contract. Many dyslexia related website now have Preference panels, which allow the user to choose background and text colours as well as font size. Few phones offer this.

With respect to each of the "input methods" (number pads, Qwerty keyboards, touch screens) each presents different problems. Number pads are easy to use, but are limiting. Many are for very small fingers, forced by a desire to be small. But small keys are difficult for those with motor difficulties. Also the multiple key strokes for a single letter can be very frustrating as the dyspraxic individual attempts to monitor how many times they have pushed a button. Qwerty keyboards can be more empowering, since there are usually less shortcuts to remember, and no repeated keys. But usually the keys are crushed into a size considerably smaller than the keys on a number pad, making precision important – a problem difficult for the dyspraxic individual.

**Case study – Calldysc**

Calldysc is an EU funded project that uses the multimedia nature of the mobile phone to overcome their cognitive deficits as well as provide a motivating platform for dyslexic individuals to learn a new language, an aspect that is usually very difficult for this group. The projects fundamental hypothesis is that in the same way our real understanding of cognitive processes come from the studying the abnormal, so our understanding of how to make the technology be made more suitable to individual needs will come from understanding the needs of these special interest groups.

Second language learning was chosen as the content material for this project since this is one of the biggest problem areas for dyslexic pupils. By the time they are 12 years old, they would have been struggling with reading and writing, including letter-sound correspondences. Many countries in Europe teach English as the second language, since it is the language of information access at university. Therefore any dyslexic who is forces to learn a second language will probably have to learn English. This means learning a second set of sound-to-letter correspondence, the rules and irregularities of the language, not to mention a whole new

set of vocabulary. Each of these areas are taxing in the first language, and therefore are often an overwhelming burden when a second language has to be learned.

A series of specific cognitive difficulties relating to language learning and dyslexic have been identified (Smythe, 2004). Each of these is significant in the learning process, and especially with learning a language. The major difficulties and their impact are as follows:

*Auditory processing*
Each language contains its own sound set, and if the differences are not perceived, pronunciation and spelling become problematic. Sound differentiation is difficult for dyslexics, especially when they are subtle, such as tone and intonation. Simple tasks such as deciding if two words are the same or difference can help develop the ability to discriminate between sounds in a new language. Sound quality on the mobile phone is therefore paramount, with headphones better than the built in earpiece/speaker. A compromise of recording quality was to use 11kHz, which decreased file size (important in the downloading of software), but maintained reasonable quality.

*Phonological processing*
The ability to analyse and synthesis sounds is key in literacy acquisition, and includes tasks such as counting syllables, rhyme, alliteration, phoneme identification, phoneme deletion and phonemes substitution. Since there are many possible tasks that could be used, the project tasks representative of the other forms. Since speech recognition technology is not easily available (or at least not available within the financial restrictions of this project) simple choice tasks were prepared which could be enabled either using the phone keypad or a touch screen.

*Sound – letter/word correspondence*
Some languages, such as Hungarian, have perfect sound-to-letter correspondence, making reading and spelling very predictable. However, English is considerably more difficult, with many rules and exceptions (e.g. adding the “e” at the end turns a short vowel into a long vowel – hat/hate, bit/bite. But note “cave” is regular but “have” is not.)

*Word retrieval*
In the same way a young child has to learn an oral vocabulary before they can communicate effectively, so too a dyslexic (and non-dyslexic) must have a basic oral vocabulary to perform tasks with respect to other difficulties, such as comprehension and sentence writing. To make the project manageable, a set of 100 key words was develop. For most students 100 words would be insufficient, but on the basis that most dyslexic students would have learned less than ten, for dyslexic learners knowing this word set would be seen as a significant achievement. The key was to ensure the images illustrating the words were unambiguous and clear given the screen size limitation. Trials were also carried out on explicit teaching of the written word through visual pairing.

*Syntactic processing*
A few of the more common one (e.g. plurals) *Syntactic processing* refers to the ability to use the appropriate word form (e.g. plurals)

*Working memory*
Although not a direct influence on specific tasks, the poor memory skills mean due can and attention has to be paid to such areas as repetition, revision and control. For control, the individual was empowered to move on when they are ready and not automatically forced forward. This meant they could fully digest the information as well as replay as necessary.

However, it is also important to remember that dyslexia impacts in many other ways, including organisational and study skills. The ability to plan an essay is frequently as much of a problem as writing the words.

The above analysis is with respect to language learning, but the principles are common to many learning contexts, such as learning new vocabulary in science.

Having identified the difficulties and areas to concentrate on for the project, a series of games were developed which addressed the key areas. (See the project website for further details.) However, the intention was not to deliver a complete language learning course, but to test a set of hypotheses derived from Nichols (2003) theoretical framework for evaluating e-learning environments.

The project developed its own principle of "Designing for mobiles" (adapted from Smythe 2004). The ten principles are:
1. Keep backgrounds clean and eliminate distracting items if they do not add to the learning.
2. Make navigation simple, consistent, easy to learn, use and remember.
3. Make the interface adaptable in colours (background and font) and fonts (type and size)
4. Use real voices not synthetic voice.
5. For shared learning environments (e.g. chat areas and discussion forums), ensure dyslexia is not a restriction on participation.
6. Use methods, systems and conventions that are known to work with dyslexic individuals.
7. Ensure that the *dis*ability is supported, but the *a*bility that is assessed.
8. Run trials with user groups.
9. Provide human support, both as a tutoring method, and for technical support.
10. If the site is password protected, make sure the password is easy to remember and written down in several obvious places.

The above may be considered to be function attributes. To this was added the good teaching practice based on the experience and publications of project partners:

- Mobile learning should be part of a blended multisensory learning environment and not a stand alone. Teachers are important!
- Be used at the beginning of the lesson, and lead to further reinforcement activities
- It should be motivating, and interactive
- Have good clear native English speakers
- Use sound, research based, principles
- Be usable by parents, without teachers feeling their role was being taken over
- Less is more!

**Conclusions**

The conclusions are that the cognitive deficits that occur in the most common special needs areas of dyslexia, dyspraxia, ADHD, and Aspergers syndrome can be addressed, and as a consequence the technology can be improved for everybody (not just those with special needs) in the learning, working and living environment.

The media is already alive with reports of the latest technology, including mobiles with built in projectors, and phones that can speak text that it has just photographed. But what will happen to the 15% of the population that think and act differently in this increasingly technology (and literacy) led community. The case study highlights how it is possible to analyse the specific (in this case) learning intentions, and map them to the difficulties of the individual and thereby develop ways to make the technology enabling, rather than disabling. And to highlights the need to have an open dialogue with those who have difficulty and those developing the technology. By listening to every member of the audience, we shall make the future better for everybody.

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## *Conceptual and Linguistic Convergencies in the Space of Electronic Communication*

Linguistic communication is an action creating society, community, and individual. It is a creative process which determines our personality and identity through our communication roles forming each other.

Moreover, the human mind is indeed a communicative system the structure of which is affected by prevailing technologies of social communication. That is to say, there is a specific inner relation between the communicative structure of our minds and the communication technologies which can be regarded as dominant is certain cultures.

And this inner relation can be shown in all major historical changes in dominant communicative technologies, from the change-over to literacy to the development of the dominance of electronic media (television, the internet and mobile telephone). In this essay, I try to prove the above assumption by the investigation of the effects that are produced on our conceptualization of community by the use of electronic media.

To clarify the nature of this new conceptualization, I take the hypothesis as a starting point that the twentieth-century expansion of electronic communication has transformed our notion of the relation between place and community. With a greater proportion of our communicative acts taking place via electronic media, physical co-presence, the co-located interpersonal relations are diminishing as determinants of the nature of human interactions.

It seems that is the space of electronic media, community should be understood as a virtual network of interactions between individuals who uniformly accept and apply some rules for the communicative actions aiming at the effective exchange of information. In other words, there is an inner relation between the criteria of community and the global and the local conditions for an effective method of information exchange. And these global and local conditions transform our notions surrounding the structure and life of community.

Electronic communication creates a new context in which our notions of culture, community, society, human interactions become more complex. These more complex notions can be regarded as the bases of the idea of the global and the local information communities in which the communication attitudes of a person are determined by their impression of their self as permanently available individual whose communicative acts are embedded in a special information net.

This paper argues that by creating new, information communities, electronic technologies have been speeding up the crossing of traditional conceptual, social, cultural, and political boundaries. And as a result of this process, we are experiencing conceptual, social, cultural convergencies in the new global and local forms of communities.

My general argument is that the bases of these conceptual, social, cultural convergencies are linguistic convergencies which lead to the appearance of a new kind of communication language.

### I.
### The Global and the Local in the Electronic Societies

With the interaction of the global and the local communication situations of the electronic era, most linguistic, cultural, and social boundaries have become more permeable. These permeable linguistic, cultural, and social boundaries affect both the particular behaviors and social identity in general. The increasing functional permeability of these boundaries is a result of such linguistic, cultural and social processes that contribute to develop the media-networked individuals' complex identity.[1]

[1] I here follow Kristóf Nyíri, „The Networked Mind", Talk given at the workshop THE MEDIATED MIND – RETHINKING REPRESENTATION, p. 27-28. 2005, The Knowledge Lab, Institute of Education, University of London.

This complex identity, however, is rooted, first of all, in the new forms of communities. In other words, the use of electronic media can make our concept of community more complex by creating new kinds of communities. A networked individual becomes a member both of a global community based on the global communication crossing cultural, national boundaries and a local community that is organized on the basis of specific, inner norms in the space of electronic communication.

As Joshua Meyrowitz writes on the "multiple, multi-layered, fluid, and endlessly adjustable senses" of the media-networked individuals' identity:

> Rather than needing to choose between local, place-defined identities and more distant ones, we can have them all, not just in rapid sequence but in overlapping experiences. We can attend a local zoning board meeting, embodying the role of local concerned citizen, as we cruise the internet on a wireless-enabled laptop enacting other, non-local identities. And we can merge the two as we draw on distant information to inform the local board of how other communities handle similar issues and regulations. All the while, we can remain accessible to friends, family, and colleagues from anywhere via a text-message enabled mobile phone. [2]

By using the electronic communication technologies, a networked individual becomes a part of a network of interactions between humans who uniformly accept and apply some rules for the communicative acts aiming at the effective exchange of information. In other words, the media-networked individuals become members of a virtual community that is determined both by the global and the local conditions for an effective method of information exchange.

In this new virtual community, new localities are in the making which are particular in many ways, and get are also influenced by global processes and global consciousness. Thus the new local communities organized in the space of electronic communication, on the one hand, strengthen the local attachments, the local identity and, on the other hand, can be regarded as integrated elements of the virtual communities created by global information exchange. Consequently, the global virtual community serves as a kind of comparison background for the local communities organized in the age of electronic media. With globalized communication space, electronic media give the networked individual external perspectives from which to judge and define his own local community. In other words, the twentieth-century expansion of electronic communication technologies, as Meyrowitz writes, "have placed an interconnected global matrix over local experience".[3] The networked individual determines the characteristics of his own local community in the light of information acquired in the global communication space.

The global perspective created by electronic communication has transformed not only the community-definitions but the individual relation to social rules. In the space of electronic communication there is a new possibility to change the rules of social perception and the national institutions of political and cultural domination as a consequence of new global perspectives.

One of the most characteristic features of the virtual space of electronic communication is that it lacks the compulsory categorization system and the classificatory forms and norms of a print society. In the media-networked global and local communities it is difficult to maintain several traditional categorial distinctions that characterized the print societies. That is, as electronic communication technologies expand, the dividing line between several political and social categories becomes increasingly indistinct.

The age of electronic communication is the age of opening categorical and classification boundaries. In this new space of communication the traditional distinctions between private and public, between children and adult experiences, and between male and female spheres collapse and disappear. In the age of electronic media, as Meyrowitz suggests, we are experiencing "both macro-level homogenization of indentities and micro-level fragmentation of them".[4]

A new virtual social space is in the making which strengthen the cohesion of competing local communities, and in which, therefore, the influence of traditional social and political institutes declines. The new communication situations created by the use of electronic technologies foster

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[2] Joshua Meyrowitz, "The Rise of Glocality. New Senses of Place and Identity in the Global Village" in Kristóf Nyíri (ed.), *Sense of Place. The Global and the Local in Mobiel Communication*, Vienna, Passagen Verlag, 2005, p. 28.

[3] Ibid., p. 23.

[4] Ibid., p. 29.

greater emotional attachments, to the local community which we choose from among the competing communities deliberately without social and political restriction.

Thus in this new social space there is a fundamentally new possibility to change the rules of social perception and the conceptualization of the relation between the local communities and traditional political institutes of state. Thanks to this changes the networked individual is attached to the place and position appointed by his own social class less and less. Through his multi-channel communicative acts he can become acquainted with more and more communal forms, ways of life, traditions and values, in the light of which he can choose more deliberately from among the competing local communities. And this more deliberate choice becomes a part of the more and more complex and multi-layered identity of the networked individual.

## II.
## Linguistic Convergencies in the Background of the New Conceptualization of Community

One of the most important criteria of the new, more deliberate attachment to the local is the deliberate application of the ways of usage that create new local communities in the age of electronic communication. And these new ways of usage are rooted in the communication language of electronic media that can be regarded as a result of the convergency of the characteristics of oral and written communication. Thus we consider the new linguistic culture of electronic communication as one of the most important conditions of the conceptual and the social convergencies experienced in the space of electronic media. It seemed that this new linguistic culture is both the basic both of the global perspective created by electronic communication and the cohesion of the new local communities that are strengthened by deliberate choices of the networked individuals. In this new linguistic culture, the original social function of language, namely, the building and maintaining of the cohesion of human community, becomes important development, because in the print societies, language has got far from this original function as a consequence of the appearance of the oral-literal "bilingualism" and the linguistic asymmetry that is rooted in the social dominance of the standard dialect of literacy. That is, instead of strengthening the community cohesion, this "bilingualism" and asymmetry disintegrates primary human communities since the use of their own dialects is overtly stigmatized in the light of the socially preferred standard dialect of literacy. This communication culture that forces the whole society and all communities to use one preferred language variety goes against individuals biologically encoded need of belonging to a primary community.

The original social function of language, however, has survived this linguistic asymmetry developed in print societies. People hold to their everyday use of language, even if they judge their own dialectical varieties incorrect under the pressure of the overt prestige of the standard. Since the members of small local communities generally communicate with one another orally, the linguistic conventions characterizing these communities have survived in the age of standard linguistic varieties too. In these small local communities the importance of cohesion-strengthening, local values outstrips the external social values that are symbolized by the standard forms of written communication. This phenomenon is experienced especially in small, isolated rural and suburban communities where the prestige of the non-standard variety of usage can be regarded, at the same time, as a symbol of communal identity.

In the space of electronic communication, literacy that generated the asymmetry of linguistic norms of oral and written communication seems to be losing of its power, and the prestige of the identity-strengthening ways of usage characterizing small communities and group grows. The expansion of the non-standard varieties of language preferred by the networked individuals is accelerated by the use of electronic media (internet, mobile telephone). This process leading to decline of the prestige of literacy is accelerated by the convergency of the oral and the written communication technologies that affects usage since "secondary orality" created by the use of radio and television[5] or, especially, use

[5] This new communication culture is referred to as "secondary orality" by Walter J. Ong in his classic work, *Orality and Literacy*. The new kind of orality, accordingly, is not succeeded by, but completes, the cultures of literacy. As Ong writes: "with telephone, radio, television and various kinds of sound tape, electronic technology has brought us into the age of 'secondary orality'. This new orality has striking

of multimedia messaging, the synchronous-complementary transmission of speech, text and pictures in the space of mobile and internet communication.[6]

There are well-perceptible, concrete signs of this convergence of the features of the oral and the written usage. Let us consider the texts that are mediated by the internet or mobile telephone! The texts of many e-mail and SMS message actually belong to the domain of speech and not to the domain of written texts. The grammatical and stylistic characteristics of these messages can be regarded as the marks of a special kind of oral communication. These grammatical and stylistic elements, however, are integrated into the texts mediated by new communication technologies more deliberately than into the oral utterances. By using these elements, the utterancer intends to show that he wishes to accept and apply the norms and the rules of a linguistic community organized by e-mail and SMS communication. That is to say, he uses these grammatical and stylistic elements of linguistic communication to make it unambiguous that he is attached to a community accepting some forms of usage and that this attachment is a consequence of a deliberate choice.

The linguistic forms accepted in this way affects the everyday usage strongly. The use of the special linguistic forms of the texts mediated by the new communication technologies lives its mark on the written communication and leads to the convergency between orality and literacy. What can be regarded as an outcome of this process is the increasingly indistinct dividing line between then linguistic characteristics of oral and written communication. A new communication language is in the making which integrates the forms of language used in oral utterances and in written texts.

## III.
## A New Linguistic Culture in the Galaxy of Electronic Communication

The appearance of the new language of communication can be regarded as a consequence of the networked individuals' deliberate choice who want to join in the global information exchange successfully and to express conceptual relations and emotions as a member of a small community by using the new linguistic forms. One of the most characteristic features of this new language is that the advent of multimedia communication has resulted in a strong interaction between picture and language in the process of, on the one hand, oral (for example television) and, on the other hand, written (for instance the internet) messaging.

As multimedia technology expands, the dividing line between the linguistic characteristics of oral and written communication becomes increasingly indistinct. This means that though the syntactic features and structure of this new language of communication reminds us of the linguistic world of oral communication, considering its semantic characteristics, the new language seems to be more complex.

Accordingly, the multimedia integration of verbal and pictorial elements, or the convergence between the linguistic features of oral and written communication, contributes to the transformation of the structure of the mind and the content of thought by establishing a new communication culture, "a more deliberate and self-conscious" kind of orality.

Consequently, by using the term "pictorial language", I am referring not only to the integration of verbal and pictorial components of information exchange, but to the linguistic medium of the specific synthesis of the features of conceptual and pictorial thought.

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resemblances to the old in its participatory mystique, its fostering of a communal sense, its concentration on the present moment and even is use of formulas. But it is essentially a more deliberate and self-conscious orality, based permanently on the use of writing and print, which are essential for the manufacture and operation of the equipment and for its use as well. (Walter J. Ong, *Orality and Literacy: The Technologizing of the Word*, London: Methuen, 1982. p. 135-136.)

[6] For a detailed discussion of the epistemological and linguistic consequences of the multimedia messaging, see Kristóf Nyíri, "Pictorial Meaning and Mobile Communication", in Kristóf Nyíri (ed.), *Mobile Communication: Essays on Cognition and Community*, Vienna: Passagen Verlag, 2003, pp. 157-184. In this paper Nyíri argues for the significance of multimedia communication by emphasizing the fact that this kind of communication can establish a new synthesis of communication technologies. As Nyíri writes: "Communicating synchronously in voice, writing, and graphics has the potential to create and maintain a higher level of human cohesion that could be achieved by any of these dimensions by themselves." (*Ibid.* pp. 183-184.)

The pictorial character of the language of "secondary orality" is rooted in the fact that this language includes expressions which refer to complex conceptual relations without a conceptual analysis of them. In other words, a new metaphorical language is in the making, the function of which is to "show" the world rather than to analyse it. By using this language, we want to "make perceptible" the complexity of conceptual relations to which we refer. The main intention of a user of this kind of language is to embed some conceptual relations in the system of more complex conceptual representations by using words that are suitable for making the complexity of newly-revealed conceptual relations intelligible.

On the one hand, this kind of usage leads to the appearance of new terms in language and, on the other hand, to the novel use of available linguistic elements. In the latter process, the meanings of some words multiply with more and more conceptual relations.

As we have seen, the new language of community strengthens the attachment both the global and the local. Thus this linguistic culture can create the bases of cultural and social convergencies experienced is the space of electronic communication. Own task in the future is to become acquainted with the nature of the inner relation between this new language and electronic communication technologies, and thus, to understand how the linguistic communication can create society, community and individual.

# Images of networks – reflected by collective consciousness

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Graphic descriptions of multi-element entities, such as websites, author lists etc. constitute an important segment of contemporary network research. The mass media ever more frequently feature products such as graphs, diagrams etc. Human thinking is essentially visual: pictures affect our emotions more powerfully and directly than texts and the communication they enable is more direct, the identification more profound than in the case of textual information.

The significance of pictorial representations has by now been well researched, substantiated and presented to the public. Thus it is highly likely that the pictorial element of various networks will powerfully influence collective consciousness, as a result of the perceptual quality of network representations and because they offer a suitable basis for abstract argumentation, the resulting narrative constituting a complex mental model.

Speech, writing and pictorial representation generate widely different attitudes and behaviours. The 'net-scapes' discussed in the present paper are a product of the school of thought associated with the name of Albert László Barabási. Experts who analysed networks of relationships can in one sense be seen as forerunners to web-analysts. However, the latter group, most of them coming from the area of statistical physics, made a huge advance by virtue of the fact hat computerisation enables them to examine such a vast number of elements as would have been unimaginable before. This fact alone enriches collective awareness with new images and a new degree of reliability.

An exciting aspect of the research into social networks is the unexpectedly high degree of interest shown by the general pubic, the media and various groups of users within the community (iwiw, Wikipedia etc.). These networks are gaining rapidly in popularity as the means of info-communication become ever more widespread. We might say that people are rapidly becoming more and more *network-conscious*.

Network-consciousness is not a new phenomenon. *Guanxi*, a determining feature of Chinese civilisation, is based on a similar type of group level self-reflection. This traditional phrase refers to a complex system which connects smaller or larger networks of individuals in economic, political and social nexus with each other. Even in antiquity there existed a remarkable mass of documented interconnections, but accessing these required an incomparably greater effort than it does today. It was only by direct presence that the individual could gain any information concerning the current state of society. Access to information was limited by confinement to a single time and a single location, whereas today rapid access to information also allows for rapid correction, opening hitherto unknown channels for feedback.

The process we are talking about is by nature emergent. From a mass of digital interactions previous unknown traits of the system emerge through algorithms which are able to detect the community around them. Today, in the age when data are available in far higher orders than before and networks are electronically documented, we must face the fact that some of our networks are 'spread out', i.e. can be accessed, observed and analysed from anywhere around the world. In return for this, however, the system also reveals itself to us.

'Networkification', similarly to material organisation, is always and everywhere an upward moving process. The media become fragmented and, at the same time, users become individualised, more active, better informed and better connected. Various characteristics of social networks are depicted together. The picture which emerges I consider as a special type of knowledge and, beyond that, a collective and contemporaneous form of representation. It is highly likely that the representation of this network will overwrite the evaluation of certain acts of communication that had previously provoked moral censure.

Thus, for example, gossip may be revealed by a visual representation of networks to be a characteristic network feature and this may lead to the rehabilitation of gossip. The fact that it is a mass-scale and universal phenomenon may validate it as a vital condition for the existence of a community.

The emergence of network-consciousness and the spreading of resulting network patterns retro-actively affects the community itself. When scanning the whole, which is more than the sum total of its parts, the community is seeking to find itself. While details are revealed about the individual and his or her relationships, the individual gains knowledge about the entire system through the network operations he or she performs. By doing this, they simultaneously contribute to generating a topology.

All of this leads one to consider: is there such a thing as collective perception, decision and action going beyond individual perception, decision and action, i.e. any that is describable by exact scholarly means; as opposed to anthropomorphic metaphors characterising the general individual? (One such metaphor is 'gaining social consciousness.') If so, has there been any collective reflection on these of scholarly intent? If so: who is the subject of this reflection? Can collective reflection rationalise social action?

The basic constituents figuring in these questions are summarised in the following two tables:

| | | |
|---|---|---|
| Communal perception: | iwiw | |
| Communal knowledge: | Wikipedia | |
| Individual perception | Collective perception | Collective reflection |
| Individual decision | Collective action | Collective reflection |
| Individual remembrance | Collective remembrance | Collective reflection |
| Individual knowledge | Collective knowledge | Collective reflection |

| | | | |
|---|---|---|---|
| Representations of the individual | For the individual | By the individual | Private: children's drawings |
| Representations of the individual | For the multitude | By the individual | Public: portraits of monarchs |
| Representations of the multitude | For the multitude | By the individual | Public: Riefenstahl |
| Representations of the multitude | For the multitude | By the multitude | Public: iwiw |
| *Representation of the multitude* | *For the individual* | *By the individual* | *Political advisor* |

Of the above variations only the fourth, i.e. representations of the multitude aimed at the multitude and created by the multitude (iwiw, Wikipedia) constitute a form of representation which is not intentional.

As long as we lack a holistic scholarly paradigm, we lack a theoretical answer to the above questions. However, we know rather a lot about various organisational forms, since some processes of the communal perceptions, decisions and actions that emerge through the use of info-communicational devices have been well documented and archived.

Systemic characteristics presented by modern network research have been declared significant (by science, economy, business life, politics etc.); and they have to some extent found their place in relation to other areas of research. Net-scapes are the result of social constructions, where a picture is a cognitive tool with its own laws and characteristics. They represent a pictorial narrative which is paradoxical in that it is a cognitive mode of operation with a social relevance and at the same time a form of knowledge sustained and authenticated by this mode of operation.

No one can help getting excited when presented with a panoramic view of his or her contacts. Net-scapes are sure to influence the collective mind in such a way as to result in a communal use of images – however, we know fairly little at this moment of the kind of actions and reactions through which this will manifest.

# THINKING IN TELEPATHIC CITIES

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Urban life and technologies for communication have long evolved hand-in-hand. For instance, Gottman (1965) described how the telephone permitted both the large scale centralization of office work, and the in-building bandwidth to make skyscrapers feasible.

This paper presents an initial look at how the emergence of telepathic cities - human settlements characteristic by mass personal mobile communications - is transforming the way we understand our existence. As Nyiri (1993) asked, "With the word processor becoming our writing instrument, what changes do there occur, if any, in the ways and content of our thinking?", this paper asks foremost, " how does the ascendance of the personal mobile phone transform our thinking?" Furthermore, I am interested in how the way we think about tele-communicating changes as we move from fixed, impersonal terminals to mobile, personal ones. As a decade of sociological research has addressed this question in detail at the individual level, I focus instead on emergent forms of consciousness, at the group level and higher.

## The Transformation of Mobility

To understand the emergence of telepathy, and the cities that require individuals to employ this capability for survival, we must consider the driving forces that have shaped this socio-technical convergence. Three trends deserve special consideration: the growth of megacities, motorization, and the rapid diffusion of mobile communications. These forces are driving the way 21st centuries will be shaped and the tools available for social, political and economic adaptation

Growth of megacities. Economic globalization has upset the balance of urban and rural economies in large swaths of the developing world, resulting in massive migration to megacity regions at the nexus of international trade networks. In more developed nations, cities are taking on symbolic and functional importance as centers of creativity. The side effects of megacity growth have massive impacts on the choreography of daily life - as women enter the workforce and rising incomes generate new choices for how families and households are organized.

Motorization. The unprecedented rate of motorization in the developing world is driving a mobility explosion on the ground and in the air. By 2030, some 80 million automobiles per year will be sold in China and India, four times as many as the US today. Low-cost airlines are introducing tens of millions of people across the globe to regional and continental mobility for the first time. These new mechanical mobilities are driving the formation of new social networks at multiple scales, which will serve as information pathways that govern daily decisions.

Rapid diffusion of mobile communications. The mobile telephone, the most successful consumer electronic device in history, acts as a catalyst and coagulant, preventing the whole fast-changing mess from flying apart at the seams. Increasingly, as capacity scarcity in wireless voice networks disappears, we see the emergence of flat-rate pricing and a shift from episodic use of mobile communications to persistent use - both 1-to-1 and many-to-many through conference calls.

Thus, we can see that mobility is exploding and being transformed simultaneously from every perspective - the container of movement (the megacity), the means of conveyance (mass motorization on land and in the air), and the persistence of connectivity whilst in transit (through mobile communications). As this happens, the very nature of urbanism is shifting from one of permanence, edifiices, and fixed capital to one of dynamic interaction.

**Communications, Choreography and Consciousness in Cities**

I would argue that these three trends are driving together to create a new kind of human consciousness in cities, arising from highly mobile, high-choreographed activity networks. For if the 20th century city was defined by the power of synchronized time and physical infrastructure to separate, isolate and coordinate activities - the 21st century city is characterized by ad hoc synchronization and the boundaries created by virtual infrastructure. In a sense, we are seeing a complete reversal of two long-standing aspects of urban existence: as the physical city becomes more ephemeral, social networks become more permanent and persistent.

The Ephemeral Physical City. Another aspect of this new consciousness is the new, and perhaps most important, role of the physical city, which is to serve as a substrate upon which layers of information and data can be referenced. As my colleague Alex Pang points out in his paper, unlike the alternate realities of early cyberpunk, what we see emerging today is a complex geographic web of information encoded to real physical places. Increasingly, what and who are physically present in a specific urban location may not be as valuable as historical, cross-referenced, or future information that will be stacked up in the co-present virtual space. We may think about cities as information spaces to be navigated, and browsed more efficiently with our bodies.

The Permanent Social Network. Alongside this shift towards a more information-based, ephemeral physical city, the emergence of telepathic infrastructures are rapidly codifying, embodying and annotating what was once the most ephemeral aspect of urban living - social networks. And thus we're seeing intense internal conflict as telepathic individuals augmented by these new technologies struggle to understand their identity within a world where every social action and relationship is recorded and visible. A Jarod Lanier (2006) pointed out, the irony is that we are inventing what looks like a new kind of "digital Maosim".

While urbanists have long debated the balance between anonymity and dense social fabric in cities, they in general have agreed that serendipity has played a major role in making urban life interesting, productive and creative. The rise of the social web, telepathically mediated threatens this vital mixing. One only has to watch young people in cafes to see this in action - whereas even 5 years ago, casual mixing would be the norm for bored people waiting for friends, today they instinctively reach to their mobile devices to stay connected to their social network, rather than exploring new connections in their immediate surroundings. Social software becomes a new kind of initimacy that enables the body to become disconnected from place. or selectively connected. Overall serendipity might be increasing as telepathic networks develop more serendipitous capacities, but these activities are certainly being disengaged from the physical city quite rapidly.

Warping time and space: Ad hoc Synchronization. It is not without importance that the mobile phone is now the most successful consumer electronics device in history - particularly its displacement of the wristwatch as the universal human accessory. For the mobile phone and the telepathic consciousness it generates is one in which time is a fungible asset, and a raw material. In many ways, what shapes the telepathic consciousness is a pre-occupation with how social networks and the physical city can be re-synchronized to satisfy needs and desires that are constantly and collectively re-negotiated.

**Telepathic Sociopaths in the Feral City**

To conclude this paper, its worthwhile to think carefully about some of the tremendous disruptions that might result from this transformation of thinking, as we move and talk together in telepathic cities. And this is to explore the idea of the telepathic sociopathy.

Examples are easily found in any city of mobile phones being used for nefarious purposes, but increasingly we are seeing new forms of sociopathic collaboration. In San Francisco the practice of "rat-packing", where criminals use mobile phones to call in fellow assailants to surround a victim. (Police Executive Research Forum, 2007)

If we see these kinds of behavior at the individual level, as individual telepathic sociopaths extend themselves to become networks (though the irony there is quite apparent), we need to ask "Do these aggregate, are there emergent phenomena far worse?" Or another way, does this form of communication create an asymmetry of power that might destabilize urban power structures? Or even further, will it change the way sociopaths think about the world enough to embolden them?

Richard Norton of the US Naval War College introduced the concept of a feral city (2003) - one in which governance has broken down, essential a metropolitan version of the failed state framework. He proposes Mogadishu as a classic example of a feral city, and Rio as one on its way. But another way of seeing these feral cities is that we are seeing the ascendance of telepathic sociopaths - such as in Rio where police lay siege to

prisons where gang lords coordinate murderous purges by smuggled cell phones.

## Conclusions

Essentially, what I am arguing is for a McLuhan-esque investigation of the mobile phone. Doubtless this has been proposed, and possibly pursued by scholars around the world. But I think that it's impossible without understanding this broader context of mobility, and addressing the powerful connection that mobility has to the physiology and phsychology of the human mind. If the medium still is the message, than the inherent characteristics of telepathic communication - instant, intimate, vocal - and the dynamic context of this activity, suggest we're just scratching the surface of how this new way of talking might transform our thinking.

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What are we?
The Convergence of Self and Communications Technology
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Cognitively modern human minds are built to conceive of scenes that are at human scale. At human scale, we operate within certain ranges of space and time. We partition our sensory fields into objects and events, where some of those objects are agents. We engage with a few agents in patterned activity. We interact with objects. We detect, acquire, and manipulate objects, often as instruments for action. We eat, we move, we fight, we mate, we procreate.

That is pretty much what we are built for. In one sense, it is what we are.

But human beings have a special ability, a defining ability, one so basic to us and so immediate that we usually do not notice it. It is called "double-scope blending" (Turner 2007, Fauconnier & Turner 2002 & 1998, Turner 1996, Turner 2001). Because of double-scope blending, we do much more than what we are built to do. Because of double-scope blending, we are much more than what we might have been. Double-scope blending expands our conceptual world, including our concepts of self and other.

Martin Gardner once argued that just as the mind of a dog will never grasp quantum physics, so there must be aspects of reality whose conception lies beyond human cognition. The analogy is misleading. We are not like dogs or dolphins or any member of any other species, because we have robust double-scope blending. They do not. We are the only ones who can turn what does not suit our cognition into something that does. We can become quite comfortable with what we are not built for, because we can turn it into something that we are built for. The dog or dolphin cannot turn what is beyond it into something it can grasp, but we can, by packing diffuse ranges of information that are not at human scale into useful and congenial human-scale scenes. Through double-scope blending, we pull what is alien to us—including quantum physics—into our own native sphere, and thereby comprehend, manage, and organize it. That which is foreign becomes second nature. Exotic expanses become familiar human-scale terrain.

Let us take up some specific examples of what is at human scale and how double-scope blending can transform what is not at human scale into congenial human-scale scenes. We are really good at understanding certain kinds of sensory experience as *an agent's performing an action on an object that causes it to move in a direction*. We are built for this human-scale conceptual frame, and language is built to express such human-scale conceptual frames. We can say, "I throw the ball over the fence." This is a Caused-Motion conceptual frame and a Caused-Motion clausal construction. Similarly, we are really good at understanding certain kinds of sensory experience as *an agent's performing an action on an object with a result for that object*. We are built for it and language is built to express it. We can say, "I paint the wall white." This is a Resultative conceptual frame and a Resultative clausal construction.

Double-scope blending enables us to blend small human-scale scenes like the Caused-Motion frame or the Resultative frame—that is, scenes we are built to understand—with other ranges of information, often diffuse, often conflicting radically with these human-scale scenes. We can blend the Caused-Motion conceptual frame, which applies to scenes like *I throw the ball over the fence,* with quite different kinds of information, so that our Caused-Motion understanding works to organize *Hunk chokes the life out of him* or *France moves England toward war.* We can blend the Resultative conceptual frame, which applies to scenes like *I paint the wall white,* with quite different kinds of information, so that our Resultative understanding

works to organize *The earthquake shook the building apart* and *Roman imperialism made Latin universal.* Such blending is called "double-scope" because the two (or more) conceptual arrays that are blended to give a notion like *Roman imperialism made Latin universal* are so different, indeed conflicting. *Latin*, for example, is not an object, not a thing; it is a distributed social behavior with cognitive principles. Nonetheless, it can be blended with the physical object in the resultative frame. *Latin* is one kind of concept; *physical object* is quite another; they both contribute to the conception of the double-scope blend. As a result, *Latin* can now be acted upon by *Roman imperialism* with a result for *Latin* that it becomes *universal*, just as the wall becomes white.

We use conceptual blending to make sense of ourselves. To make sense of ourselves, we must do work to manufacture understandings at human scale. We manufacture a sense of stable personal identity, despite the manifest evidence of discontinuity and variation across our individual lives. Despite the swarm of detail in which we are embedded, we use blending to manufacture small narratives of ourselves as agents with stable personal identities. This is an indispensable part of our cognitively modern human cognition, and other species do not seem to possess this mental ability in any substantial measure. Stable personal identity that does not suppress the details is a result of blending across many complex and nuanced experiences, with analogies and disanalogies between them. In the blend, the analogies are compressed to one element, *a stable personal identity*, and the disanalogies are compressed to *change* for that personal identity.

Cognitive science has shown that human beings are mentally much more complicated and diffuse than our folk theories of mind suggest. For example, there is no controversy in vision science or language science that the mechanisms of vision and language are extraordinarily complex, quite unlike commonsense conceptions of how they work, and mostly invisible to human beings, who see and talk and offer folk theories such as "I just open my eyes and the scene comes in" or "Words have meanings so I say what I mean."

Great ranges of backstage cognition make vision and language happen. There is no scientific dispute over this matter, although the secondary and tertiary details make for enjoyable scientific controversies. The principal reason that human beings think that sight and language happen in fairly simple ways, with fairly simple principles, and with intelligible, human-scale frames, is that vision and language do produce some small, integrated, useful packages and deliver them into consciousness, and these little packages do seem to us to be fairly simple, with simple principles and with intelligible, human-scale frames. The cognitive scientist is in a curious situation: human beings are not built to grasp *actual mental functioning* scientifically—doing research in the field is slow, hard work—but human beings are indeed built to grasp these little *human-scale packages of consciousness*, and to blend the frame for the scientific question with the frame for a conscious human-scale package, and so to produce, in the blend, human-scale folk theories of who we are and what we do.

For example, for centuries, scientific notions of perception depended on the "Cartesian theater." The Cartesian theater is the implicit idea that there is a little perceiver in the head, a kind of attentive homunculus, who pretty much watches a representation of what we are watching in the world, and who figures it out. In the simple human-scale frame in consciousness of *the Perceiving Self*, each of us is an attentive self looking at the world and figuring it out. To answer the question *what is the mind doing?,* we blend the simple frame of *the Perceiving Self* with our frame for the scientific question and so create a folk-theory of mind in which there is an attentive mental agent looking not at the world but at a mental representation of the world. In the double-scope blend, there is a watchful little perceiving guy looking at sensory representations of the

world. This watchful little perceiving guy is the audience of the Cartesian theater. The notion of the watchful internal homunculus in his Cartesian theater had influential scientific standing for centuries. But it turns out that vision works nothing like that. Vision is far more complicated, there is no attentive homunculus in the mind, and there is no anatomical spot where sensory data are assembled into a unified representation of the sort we imagine, much less on a big screen with surround-sound and supplements for olfactory, gustatory, and tactile perception. Indeed, it is a deep scientific problem to explain how something like a coffee cup—with its hue, saturation, reflectance, shape, smell, handle for grasping, topology, temperature, and so on—can seem in consciousness like one unified object. In neuroscience, this problem is called "the binding problem" or "the integration problem." We are built to think that the reason we can see a coffee cup as one unified object is simply that the coffee cup *is* one unified object whose inherent unity shoots straight through our senses onto the big screen in the conscious mind, where the unity is manifest, unmistakable, no problem. It is natural to hold such a belief, but the belief turns out just to be a folk theory, another case in which we make a frame blend of the scientific question with a frame of consciousness. It does not seem to us in consciousness that we are doing any work at all when we parse the world into objects and events and attribute permanence to some of those objects, but these mental achievements constitute major open scientific problems.

In consciousness, typically, we frame experience as consisting of little stories: our basic story frame includes a perceiving self who is an agent interacting with the world and with other agents. Despite the detail in which we are embedded, and the manifest discontinuities in our lives, we manufacture small conscious narratives of ourselves as agents with stable personal identities, and these small narratives are at human scale and easily intelligible.

In these narratives, we possess straightforward powers of decision, judgment, and choice. Consciousness is equipped for just such little stories of choice: we encounter two paths, or a few fruits, or a few people, and we evaluate, decide, choose. We act so as to move in the direction of one of the possibilities. We say, "I'll have an espresso." We are not set up to see the great range of invisible backstage cognition that subtends what we take to be evaluation, decision, and choice, any more than we are set up to see the work of vision or language. But we are set up to make a blend of (1) the human-scale conscious experience of a chooser choosing and (2) the scientific question of how the mind decides.

The result is *homo economicus*—a folk theory of a rational actor in the head, with preferences, choices, and actions. *Homo economicus* is a homunculus much like the little mental guy in *the Cartesian theater*. The Cartesian homunculus looks at the screen and perceives; *homo economicus* looks at choices and chooses. In the *homo economicus* blend, each of us is a stable chooser with interests, living a narrative moment as an agent with a personal identity, encountering other such agents. This human-scale narrative blend of the self as a stable identity with preferences that drive choice toward outcomes is marvelously useful, instrumental in action, motivation, and persuasion. It is a worthy fiction that helps us grasp ranges of reality that are diffuse and complicated. (See Turner 2001.)

Here I come to the blend of self with communications technology. For the most part, we are built to understand personal technology. Speech, for example, is a personal technology developed for communication. It is at human scale. It operates within congenial human dimensions, with pleasing proportions. We have a simple conceptual frame for speech in consciousness. In this frame of *Speech*, one person uses speech to communicate with another person, and they take turns. When we ask ourselves how we really work and what we really are, it is easy for us to blend the scientific matter with the human-scale conscious experience of speech. The result is a conception of self as a *Converser*. This is a blend of self with

communications technology. Once we have this blend, we can use it as an input for further blending. Thought can be conceived of as a colloquium, either informally, as when we conceive of thought as an internal debate or conversation, or scientifically, as when we imagine that different aspects or even anatomical locations of the brain are talking to each other, communicating. So it turns out that one of our most basic conceptions of self derives from blending our concept of self with our most basic communications technology, speech.

Writing systems are another communications technology, only several thousand years old, and not widespread until quite recently in our history. Many conceptions of self derive from blending our mental activity with writing systems. These conceptions range from the notion of the *tabula rasa* to Hamlet's promise to the ghost:

> Yea, from the table of my memory
> I'll wipe away all trivial fond records,
> All saws of books, all forms, all pressures past,
> That youth and observation copied there;
> And thy commandment all alone shall live
> Within the book and volume of my brain,
> Unmix'd with baser matter. (Act 1, Scene 5)

The invention of each new communications technology has brought new opportunities for understanding the self by blending our vague, diffuse notions of self over time with our notion of self as a user of the technology. These technologies include semaphore signaling systems, signed language, telegraphy, personal letter writing, telephony, radio, television, email, and chat rooms. *We know our technologies better than we know ourselves. Our communications technologies are designed to operate at human scale and are therefore at the center of what we know best. Accordingly, we think of ourselves in terms of them, by blending our general concept of ourselves with our understanding of how the communications technology works.*

Perhaps the next big platform in telecommunications is the 3D web, as exemplified in massively multiple online synthetic worlds such as *Second Life*. *Second Life* presents many opportunities for blending self with telecommunications technology. I will focus on one: we often unpack our human-scale concept of self into a more diffuse array so that it can be repacked into a different human scale blend for understanding the self. For example, consider the scene in which we look at our reflection—in a mirror, window, or pool of water. In this scene, two different aspects of the self that are packed into one conceptual unit—such as the professional self and the domestic self—can be unpacked into two selves. The availability of the reflection makes it possible to blend one of the selves with the body and the other with the reflection. The now two separate but related selves can be blended with the human-scale scene of a conversation between two people. And so, the domestic self can look at the professional self that is in the mirror and address it, saying, "You have forgotten who is in charge here." Or the youthful self and the aged self can confront each other. The possibilities for unpacking and repacking are many.

Communications technologies frequently include a representation of self: a videoconference, for example, presents a virtual self. This representation of the communicating self can be viewed either as an instrument that is deployed by the "true" self or as a being with a mind of its own. The general self and the communicating self, unpacked into separate but related selves, can be recaptured by a human-scale blend. The blend might have the two related selves in conversation. Or it might have a new version of the self that inherits aspects of both the general self and the communicating self. This unpacking and repacking of the self has been imagined in

many fictional works, ranging from stories of avatars or disguises or masked performances to the explicit separation of self and daimon in Philip Pullman's *His Dark Materials*.

Second Life contains a representation of the communicating self: an on-line avatar, a digital citizen. The avatar presents many possibilities for unpacking and reblending the self. The avatar can be designed so as to be a separate self, a site of experimentation with selfhood. The directorial self can be framed as the observer and the avatar as the agent; the directorial self can be surprised, challenged, refreshed by the actions of the agent, and learn from them, even incorporate them or reject them. In this case, it is as if there is an experimental self held at a distance who is auditioning for influence in the selfhood of the directorial self. One of the most interesting aspects of online avatars is that they can act in ways that are not explicitly intended by the directorial self. Just to give one example, there are several scripted gestures available to the on-line avatar, such as dance routines. The directorial self can engage the avatar in one of these dance routines without knowing what it will involve. In such cases, the avatar is not a closely-controlled puppet of the directorial self. On the contrary, the directorial self can be surprised to see its avatar engaged in activities that the directorial self did not intend. The communication technology makes it possible for other players to construct not only clothing but also behaviors for other avatars to adopt. In Second Life, these bits of self, offered by others, can be blended directly into the avatar, and the avatar, so closely related to the director, can be blended with the general self. The communications technology of Second Life pushes the envelope of selfhood. Events can happen in Second Life that a given avatar does not intend, does not want, does not actually understand, or cannot resist, but the director must deal with the experience of having had them synthetically.

We know what we are less than perfectly because we are not equipped to know what we are. A scientific understanding of the human mind is in its embryonic stages, at best. But we are indeed equipped to make human-scale blends that include human-scale conceptions of self, relying heavily on simple conscious frames to do so. The result is notions like the Cartesian Perceiver, *homo economicus*, the mind as an internal conversation, and so on. Because telecommunications technologies are built to be used at human scale, they provide powerful potential inputs to such blended notions of self. It is not that these telecommunications technologies are blurring the boundaries of the self; rather, they are making it possible for us to have certain human scale conceptions of self in the first place.

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# Spatial and temporal immediacy
# Camera phone photography in relation to time and distance

## Abstract

The context of this paper is visual mobile communication and camera phone photography. The starting point is the convergence of photography and mobile phone communication. Camera phones, and photo messaging in particular, can influence photography in relation to time and distance. A traditional, printed photograph can offer a sense of spatial immediacy, but a photo message, by providing also temporal immediacy, can create a strong connection and a sense of immediate presence. I review this aspect of photo messaging in relation to family photography, concentrating on the ways of maintaining the family community.

## Introduction

The theme of my paper is visual mobile communication as made possible by camera phones (mobile phones with a built-in digital camera). My primary interest in visual mobile communication is *photo messages*, that is, photographs taken with a camera phone and sent to another mobile phone. A more general term is "MMS message"; MMS is acronym for Multimedia Messaging Service. Visual contact with distant others and immediate sharing of photographs can also be achieved with a mobile phone using e-mail or web applications. Photo messaging as a concept should therefore not be limited to MMS technology alone.

A camera attached to a phone is a combination which enables immediate, interpersonal photographic communication. Users are not limited to merely taking photographs with their camera phones, as they can also send the photos directly to somebody else as photo messages. Two essential characteristics of photo messages are that they are often sent immediately after taking the photograph and that they are shared by communication over distance.

Real-time communication over distance has always been the essence of telephone communication. Photographs, by contrast, have been a time-biased medium (see Innis 1991), as their most prominent use has been recording and documenting events for viewing at a later time. Photography has not been real-time communication; before the advent of digital photography, it took considerable time just to develop the photographs, not to speak of transmitting the photo instantly from the camera to some distant recipient. Prior to its integration with the mobile phone, the camera was not a telecommunication device. And, vice versa, telephone communication had never been visual until the arrival of second-generation mobile phones and camera phones in particular.

In this paper, I examine photography specifically in the context of personal photography and family photography, not photography in journalism or art. The focus is on camera phone photography in relation to time and distance. I begin by elucidating the concept of presence in the context of mobile phone communication and photography. Next, I discuss the spatial and temporal characteristics of photographs and photo messages. The final part of the paper consists of a review of photo messaging in relation to family photography and family albums.

In the paper, I use data from an empirical survey I am currently conducting, in which I study the photo messaging practices of 80 students and 37 staff members at the Arcada University of Applied Science in Helsinki.

*Keywords*: photo message, MMS, photography, mobile communication, camera phone, time, distance, family photography

## Presence, absence and time in photography

An important concept in the context of mobile communication is presence. Gergen (2002, 227) uses the term *absent presence* to describe the state where one is physically present, yet at the same time absorbed by a technologically mediated world elsewhere. Ito and Okabe (2005) propose the term *ambient virtual co-presence* to describe the way in which people use mobile phones (especially their messaging capabilities) to maintain an ongoing background awareness of others. Ling (2004, 192) describes as *remote presence* the situation that arises when, with the aid of a mobile phone, a person has an on-going sense of another person's location. The antithesis of these mobile spaces or states can be described as *full presence*, the state of being absorbed and constituted by the immediacy of concrete, face-to-face relationships (Gergen 2002, 227).

Presence in the context of mobile communication should not be confused with actual or physical presence; it is presence only in a figurative or illusory sense. Thus, also in this paper presence does not refer to a physical, face-to-face presence, or full presence, but rather to a feeling of presence, a communicative or mediated presence.

Presence is a familiar concept also in photography studies. However, unlike a mobile phone, a traditional photographic print cannot mediate presence directly, or concurrently, as the person in the picture might already be dead (e.g. a picture of a great-grandfather taken in the 1920s). Photographic presence is rarely "present" in the sense that the presence of the subject of the photo in the specific space where the photo was taken has probably ceased by the time we look at the picture. The photograph only provides an "afterimage" of it, an after-presence through a temporal transition – in a way, the photograph is a re-enactment of that situation. The presence did exist, but is no longer present.

Traditional conceptions of photography have generally regarded photographs as documents of the past. According to Barthes (1991, 44), a photograph does not establish a consciousness of the being-there of the object in the photo, but an awareness of its having-been-there. Barthes presents a new space-time category: spatial immediacy and temporal anteriority, "the photograph being an illogical conjunction between the *here-now* and the *there-then"* (ibid.). The here-now is the real unreality (or the re-enactment) of the photograph. According to Barthes (ibid.), a photograph is in no way a presence, for "in every photograph there is the always stupefying evidence of *this is how it was."* A photograph does not necessarily say *what is no longer*, only and for certain *what has been* (Barthes 2000, 75), and, I must add, never *what is*.

Yet a photograph embodies the possibility of being present. Spatial immediacy can be read as the ability of a photograph to provide in itself a presence in space by being in front of the viewer as a material artefact, the here-now of an event photographed in some other place, some time ago. The "then" of the photograph is present "here and now". According to Green and Lowry (2003, 57), the overriding experience of the "what has been" and the countervailing force that what we see is also unquestionably "present", are merged in a photograph.

A photo message can offer the same type of spatial presence as any photograph. However, a photo message can provide also a presence in time – a temporal presence. There is a high possibility that the person in the photograph is still present in the location where the photograph was taken and sent as a photo message. I would assume that when Barthes said that "the photograph is in no way a presence", he was referring especially to this presence in time, or the lack of it in traditional photography. The presence of the subject in traditional photographs is not contemporaneous, therefore photography for Barthes is never about the present, even though the act of viewing occurs in the present (Price and Wells 1997, 44). A traditional photograph can mediate an event from there-then to here-now, but a photo message forms a connection between there-now and here-now. Photo messaging is therefore more about communicating over space than communicating over time. Only a photo message can provide both spatial and temporal immediacy, an immediate presence.

It should be noted that photography, even on a mobile phone, is not real-time communication. In a photo message, the photograph's "then" and the viewer's "now" are not perfectly synchronous, yet they are probably temporally closer to each other than in a traditional photograph. Some research interviews (e.g. Wilhelm et al. 2004, 1406) have produced results that support the here and nowness by highlighting the importance of the "power of now" in photo messaging. The idea of live coverage is not altogether unfamiliar to people using photo messages in mobile communication. An interviewee in my empirical study remarked that "You can show unusual or strange things happening at the moment they happen, and you can send a picture of that to a friend or somebody, hey, something like this happened right now".

Presence and absence are the constitutive core of photography. The feeling of absence in a photo message has more to do with distance; absence is not absence in time (e.g. death), but absence in space, the intimate other being in some other place at the moment. It might be reasonable to say that photo messaging is to a large extent determined by the will to overcome absence in space. The connection between existing physical or social distance and emotional vicinity (intimacy) is one of the defining characteristics of photo messaging.

One example from my research interviews indicates clearly this type of behaviour. Upon arrival to Spain, a woman sent a photo of herself and her boyfriend as an MMS to her parents in Finland "to let the people back home know that we had just arrived and that we're OK, and this is how it looks like, and it's warm and sunny." The physical distance between them was accentuated by the fact that in Spain it was a glorious day and in Finland it was raining. According to her the MMS "gave them [her parents] an understanding of what we're experiencing."

**Photo messaging and family photography**

Next, let us examine camera phone photography in the context of family photography. Photography can be said to be an integral part of family life. Bourdieu (1990, 19) argues that the practice of photography only exists for most of the time by virtue of its family function, by reinforcing the cohesion of the family group. Photography has become the family's primary instrument of self-representation, the means by which family memory is continued (Hirsch 1997, 6). Snapshot photography in particular establishes a preoccupation with the family (Williams 1991, 186).

An important element in family photography is the passage of time. Family photographs maintain the family community especially over time. Kuhn (2003, 399-401) observes that family photographs are about stories of the past, shared by a group of people which in the moment of sharing produces itself as a family. "The family photographs construct a family story in some respects like a classical narrative – linear, chronological, cyclical repetition of climactic moments – births, christenings, weddings, holidays (if not deaths)" (ibid.). The

family album represents a visual narrative by which a familial identity is constituted and stabilised (Slater 1995, 138). A family photograph is above all a document of the progress of time.

The family album expresses the essence of social memory. "The family draws confirmation of its present unity from its past" (Bourdieu 1990, 30-31). The family community might not be present together at the moment, but the photo album shows the important moments which unite the community; the photographs prove its presence over the years.

Photo messaging, by contrast, lacks the element of the passage of time almost completely. Photo messages do not "arrive" to the handset from the past. Photo messaging is very much connected to the present and to those who share one's current life. Photo messages between family members do not connect the family in time, but only those who are presently active in the family community.

A photo message functions to maintain the family community in the present by bonding members in time and over distance. An important goal in photo messaging is to efface the absence in space, whereas a photo in an album has to do with absence in time. Photo messages do not maintain the family community through memory, but through a contemporaneous connection. What is shared is the present, not the past.

Family albums can include pictures of dead family members or relatives one has not met for many years. By contrast, photo messages are shared normally between close family members (spouses, siblings, parents and children) and almost never include images of dead family members. Photo messages are transient messages in the present that do not portray the progress of generations.

Photos of important events such as the first steps of a child occupy an important place in family albums. However, a photograph of the same event can be also communicated with a photo message to proud grandparents. The importance of the photo message as a document stems from the fact that the first steps were taken just now. The main purpose of the photo message is therefore not to create a memento, but to share the moment.

A photo message provides a telepresence rather than a "token presence", the imaginary possession of a past (Sontag 1977, 9). Both a photo message and an album photo function as documents of a presence, one contemporaneous, the other of the past. Photo messages help to maintain a visual telecocoon (see Habuchi 2005) of an existing intimate community, regardless of the geographical distance between the community members.

According to Bourdieu (1990, 31), there is nothing more reassuring than a family album, and also photo messages can serve a similar function. Just like short, frequent informative phone calls (Licoppe & Heurtin 2002, 106), photo messages can also bring reassurance. Photo messages help create a sense of connection and community. However, they are not an assurence of the continuity of the community, but rather its existence in the moment.

It is important to note that photo messaging is a form of interpersonal communication. Photo messages are mainly, though not always, one-to-one communication, whereas photo albums can be viewed by a larger group of people at the same time. It is therefore not clear to what extent personal, one-to-one messages function to maintain the family community. Photo messages can connect only two family members at a time, although the message can, of course, be shown to someone close by. Not every photo message sent between family members therefore necessarily supports communality or the cohesive function of family photography. It is even open to question whether an enamoured couple sending photo messages to each other forms a community at all.

## Conclusion

Since photo messaging takes place in the framework of telephone communication, the possibilities for communality are also restricted by the limitations of the telephone as a one-to-one medium. Because the significance of photo messages as documents and mementos may be small compared to traditional personal photography, and photo messages may not be saved as often for future reference, they are characterised by transience. Photo messages can function as communicational objects that enable people to engage with each other in almost real time, helping them to form a connection in the present, as opposed to a connection between past and present. Photo messages function as a presence in time, not over time. A photo message is an extreme case of the immediacy in photography, both in the spatial and temporal sense.

It is not self-evident that photo messages belong to the genre of family photography at all. Thus photo messaging might be more suited for the maintenance of *full time intimate communities* than families. Full time intimate communities consist of frequent contacts with a select few, a round-the-clock set of relationships with an exclusive group of friends. For example, upon returning home, young people will make calls with the same friends whom they just saw at school (Matsuda 2005, 133). A close group of friends might not compile a traditional photo album documenting the passage of time, but instead maintain their community by constantly sharing photographs. The essence of a full time intimate community is in the present rather than in the past. There are no ancestors in a full time intimate community. Its members are absent in space, not absent in time.

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# EMOTION AND MY MOBILE PHONE

## *Introduction*

Many people use emotion to express the ways they feel about their mobile phone and all that it engenders; some even say that they cannot imagine life without it[1]. In this paper I examine how some people talk about their apparent attachment to and dependence on this small computational communications device that has pervaded our lives for over twenty years. In particular I explore how these people express their emotions and feelings with regard to their relationships that are mediated via the device. This research topic forms part of my doctoral thesis and this paper is written during the early stages of new empirical work examining the ways that mobile phones figure in the day to day lives of around forty people in the UK. It reports on the pilot study for this research in which six people each spoke with the author for not less than an hour. Using open ended face to face interviews the interviewees were encouraged to talk about their experiences with their mobile phone and how they used it (or them) in their everyday life. Where possible their feelings about the various scenarios they spoke about were explored in more detail. The conceptual framework for this research follows the interactionist interpretation of social practices and the work of Goffman[2] and others; Hochschild's[3] emotional labour theory has particularly informed the analysis of this pilot study.

## *Theoretical Perspectives*

Goffman's[4] various discourses based on the observation of people and their behaviours has been used to good effect by others to analyse the social practices of mobile phone use. In particular his work on the presentation of self and interaction ritual offers us explanations for the ways we manage our response to others – the 'form' we adopt, and how we deal with the unexpected by putting on a 'face'. Further we have front stage and back stage behaviours the latter being those we do not make explicit or share without consideration and the former those that we show in public. His dramaturgy concept that each person is performing as if on a stage enables us to explore further the interactions of people. The effect of the

[1] Vincent J., (2005) Emotional attachment and mobile phones p117-123 Glotz P., Bertschi S., Locke C., (eds) Thumb Culture The meaning of Mobile Phones for Society Transcript Bielefeld
[2] Goffman E., (1959) The Presentation of Self in Everyday Life Penguin Books Edition (1969) Middx
[3] Hochschild A. R.,, (1983)The Managed Heart Commercialization of the Human Feeling University of California Berkely (20th edition with afterword 2003)
[4] Goffman E., ibid and (1967) Interaction Ritual Essays on Face-to-Face Behaviours Pantheon Books New York

mobile phone on others in public space as investigated by Cuminksy[5] has highlighted also the difference between what we might expect from our own 'front stage' behaviour and that of others, and Höflich[6] has provided us with further insights from his observation of mobile phone users in Udine. Fortunati[7] in her exploration of the role of the mobile phone and the self has exposed the 'backstage' activities of the user. Collectively these studies give an indication as to how I might explore these new interviewees use of their mobile phone and the relationships that are mediated by them. However, with the exception of Fortunati, the studies are mostly about the observed behaviours of others (following Goffman) and do not extend to the examination of the emotional aspects of the relationships mediated through the device and how it affects the mobile phone user.

Fortunati[8] has asserted that the mobile phone is diminishing the distinction between when we are acting and when we are just being ourselves; she suggests that maybe the categories used by Goffman need to be updated as the backstage is now much more in the foreground. Examples of this have certainly emerged from the pilot study and are discussed below but it could be that what has emerged from the mobile phone's omnipresence in society are a new set of behaviours that would appear to fit within the 'middle stage' the concept developed by Meyorwitz[9] in his examination (before mobile phones) of the impact of electronic media. Fortunati, in examining the emotions associated with mobile phone use and public space alerts us to the loss of the intimacy of the back stage and also that 'we have lost awareness of social space as a place of control'[10]. Creating a new 'stage' to locate electronic mediation is one approach but another is to look in more detail at how the intrusion of the intimacy of the backstage is being managed by the mobile phone users and for this I turn now to Hochschild's theory of emotional labour.

Hochschild, in exploring these back stage elements has taken the management of what Goffman terms 'form' and 'face' and the ways we allow ourselves to express our feelings in front of others a step further in her explication of emotional labour. Emotional labour is the outcome of the apparent contradiction between a person's inner feelings and those that they show externally. In her research on flight attendants Hochschild[11] offers us an exemplar of this. Whatever they might be feeling at the time these staff must convey a friendly countenance in their work and they have thus learned to manage and suppress their inner feelings in order to convey what is required of them by their employer. This outward expression of what might be called false emotion has even been described by some as 'going robot' - something they do automatically rather than in a planned way. I assert in this paper that there are similarities between this managed emotion, the emotional labour as described by Hochschild, and the ways that people have learned to use their mobile phones. The key to this being that the mobile phone is mediating a multitude of relationships and communications which range from the highly desirable to the most disliked. The mobile phone provides multiple moments involving others when there is a discrepancy between what one wants to feel and what one actually does feel – a situation described by Hochschild as 'a

[5] Cuminksy K.M., (2005) *"Surprisingly, Nobody Tried To Caution Her"* pp225-236 Ling R., Pederson P. E., (eds) Mobile Communications Re-Negotiation of the Social Sphere Springer Verlag London
[6] Höflich J.R.(2005) *A Certain Sense of Place Mobile Communications and Local Orientation* Nyiri K.(ed) A Sense of Place, The Global and The Local in Mobile Communication Passagen Verlag Vienna
[7] Fortunati L., (2005) *Mobile Telephone and the Presentation of Self* pp203-224 Ling R., Pederson P. E., (eds) Mobile Communications Re-Negotiation of the Social Sphere Springer Verlag London
[8] Fortunati L., ibid
[9] Meyorwitz J., (1985) No Sense of Place the Impact of Electronic Media in Social Behaviour Oxford University Press New York
[10] Fortunati (2005) ibid p217
[11] Hochschild ibid

moment of "pinch" '[12] This is explored in more detail in the following examination of the pilot interviews.

## *Examining the Research*

In examining the interview transcripts three particular themes emerged. The first involves the groups of relationships with whom the interviewees communicated. As one might expect these were mainly family, friends and work colleagues but within these relationships there were secondary layers of importance and few overlaps. The second theme is about this 'middle stage', the exclusive place in which relationships were being developed and in ways that may not be the same in any other place. The final theme is the management of emotions and the ways that people deal with their 'moments of pinch'.

## 1. Groups of Relationships

Each of the interviewees used their mobile phones to conduct relationships with friends, family, business associates and commercial organisations to varying degrees.
The importance of the device to them was determined by how much they needed to be in contact with for example their family or their place of work and how much these people expected them to be contactable. For example Maria has four groups of relationships that reflect family, friends and emergency commitments and the amount of contact she wants to have with them. Being available to respond to the possible needs of her mother, who lives in a different country, means that she is always alert to calls from any family members, even while at work, and the desire never to miss contact with her boyfriend, also overseas, has led to her holding the mobile in her hand everywhere she goes.

The other interviewees were not physically so close to their mobile phones but they mostly kept them with them at times when family situations required them to be contactable such as collecting children from school or being away from home, although sometimes if they had no credit they would rely on another family member's mobile phone.

Keith used his mobile phone primarily for work and although he was enthralled by the technology he was determined not to allow the mobile phone to rule his life outside of work. He saw it primarily as a work tool and when he could he would turn it off and put it in his briefcase until he started work again. He did recognise, however that his wife relied to some extent on him having the mobile and communications with his daughter, at university, had been made more complicated when he had not had his mobile to hand. James on the other hand either worked from home or was away on extended business trips overseas. Unless he was in charge of the children he didn't automatically take the phone with him for local trips out because of coverage issues, but when he was abroad it really came into its own particularly for maintaining contact with his family. On one trip he left the mobile in a taxi on the way to catch his flight home and although it was inconvenient he was able to substitute it for a phone card at the airport for calls to his family to say he had lost it.

We learn from the interviewees that, reluctantly for some, their mobile phone had become an almost indispensable tool when managing close family relationships but that beyond this group they managed who could contact them and when. The feeling of security and comfort that they could always contact their close family using the mobile phone could not easily be

[12] Hochschild ibid p96

substituted, as James found when he lost his, but in contrast the feeling of loss of control to work demands meant that they had developed clear strategies for avoiding contact such as using another mobile or switching it off.

## 2. Developing the 'Middle Stage' in Relationships

The idea that the mobile phone might be being used in ways that were not replicated elsewhere in their relationships was not something that appeared to have occurred to any of the interviewees. However as they spoke and they reflected on exactly how their mobile phone figured in their lives some of them acknowledged that they had not thought about it in this way before.

James finds himself using his mobile to interact and bond with his young son who is showing an interest in ICT. They record images together using the mobile phone and although James bought the particular mobile with all its extra image and sound functionality for his own use he finds his son makes more use of these now. He will be renewing his mobile phone soon and when he does he will let his son have more use of his old one.

This communication between father and son through the mobile phone is not conducted through network based calls and text but through interaction with the device and the content and functions that it can perform. Meaningful only to him and his son the mobile phone has become a mediator of the emotional bonds between them as his son moves towards greater independence.

Maria had started to commute to her new job and she used the time that she had previously spent meeting with her friends for a drink to talk to them instead, and she smiled as she recounted what she now does.

'W*e have this pattern of talking, when I leave from work I usually speak to one of them talking to them as I walk to the station and one of them is doing the same thing. We have that walking together moving through the city and chatting'.*

She liked the idea of winding down and relaxing by talking and walking whereas in the past she would have achieved the same effect by having a drink with friends. Maria is clearly unworried by being in a public place when she is calling friends but through the use of her mobile phone on the move she is creating a mobile middle stage, one that only she and her friends occupy.

It is notable that the common factors in these two examples are the mobile phone and its mediating role in the relationship – that the people involved are side by side or miles apart does not change the exclusivity of this 'middle stage' experience.

## 3. Managing Emotions

Managing emotions runs as an undercurrent throughout the interviews as situations are recounted such as when they felt compelled to answer calls in inappropriate locations or at times when they were not emotionally equipped to handle the content of the call. These are the 'moments of pinch' described by Hochschild and are demonstrative of emotional labour. It appears that all the interviewees simply accept that these situations occur and they have each developed strategies for dealing with them. They have developed a 'form' for dealing with calls and on occasions when it intrudes they convey a false emotional response, disguising their true inner self which may be upset or dealing with other issues at the time.

Elizabeth uses her mobile to keep an eye on her children's whereabouts as well as keeping in touch with her husband and friends. She has not given her mobile number to her boss as she does not want to be worrying that they might call her to change her shifts but she has made it available to a group of clients for emergencies. Elizabeth tells of her irritation when one client abused this by calling her when she was in a supermarket; she felt she had to take the call but in the end it did not warrant emergency action. The emotional labour is not consistent or permanently associated with particular callers for at other times communications may be welcome from the same people or a call may be made to them. On the same shopping trip Elizabeth answered the phone to a friend at the checkout (although she hates it when others do it) because she knew that the call was only going to be made in a particular circumstance and she judged it appropriate to take it, but *'I kept apologizing to the check out girl and my husband was really annoyed'*.

These 'moments of pinch' occur, Hochschild[13] suggests, when 'the individual feelings do not match the situation' and in the examples we have discussed here they occur front stage. Back stage the response to inappropriate behaviours is different; in one instance when calls made by Maria were not answered she actually threw the mobile phone in frustration and anger - a reaction that occurred in the privacy of a hotel room.

## *Conclusions*

Whether it is communications by text or voice, the taking and sharing of images or simply the touch of the device that contains the memories and links to loved ones the mobile phone has become an essential item in mediating relationships for the interviewees in this pilot study.

In this paper I have explored ways that some people manage their various relationships back stage and front stage and how some of these electronically mediated mobile phone communications might now be construed as taking place only in a middle stage. I have also examined the particular aspect of the emotions that are mediated by the mobile phone and how some people have learned to manage the ad hoc interaction with others that I have described as a form of emotional labour. The desire to keep contact with those closest to them has created an emotional paradox for the interviewees in which the wanted and unwanted callers must be managed in the same courteous and appropriate way. They have now learned to manage their emotional response to being contacted at any time despite the fact that they sometimes feel obliged to respond when called by family members or work colleagues although at the time the call is an unwanted intrusion. .

Goffman talks about the 'face' people have for dealing with different and unexpected situations – it is their way of dealing with the unfamiliar. In the examples I have discussed above for the different callers who are intruding on the lives of the interviewees at any point in time we have examples of changes of face and beyond this, the actual management of back stage emotions and the suppression of feelings in order to avoid disappointing a caller who has made contact at an inappropriate time. Similarly when making calls they are hopeful of a positive response although as Maria found this does not always happen. The emotional labour now involved in having a mobile phone is becoming increasingly evident as the groups of relationships mediated through the device penetrate more and more the private, back stage moments in the interviewees day to day lives.

[13] Hochschild A., ibid p96

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# *Media Convergence from an Adolescent's Perspective*

## Introduction

Today's media landscape is marked by two forms of convergence: Firstly, a technical convergence and secondly a convergence with regard to the contents. Mostly – and especially in economic und scientific contexts – media convergence is primarily understood in the first way, as a technological process. It describes the merging of delivery channels due to the digitalisation and the associated erosion of boundaries between formally segregated media services and the development of multi-service platforms or devices with multiple media functions. The most important motor here is the ongoing development of computer technologies and the internet. Particularly in regard to the internet we can see a breath-taking increase of specified services, contents and communicative opportunities in the last years. Today, for example, we can listen to web-radio, watch TV via internet, read online-newspapers and communicate via email, IRC, weblogs and forums. And all these things are possible while using a single device like a PC or a mobile phone.
Convergence with regard to content implies that identical or similar content is presented within various media and through multiple delivery channels respectively. The convergence of content is supported by cross-media strategies aiming at the development of media brands which offer synergetic effects through cross-media references and the marketing of media suppliers. Popular examples for successful cross-media marketing strategies are media brands like "Spiderman", "Lord of the Rings", "Harry Potter" or "Tomb Raider". There are not any longer only starting media representation (*urtexts*) and ancillary products. In the last years a new strategy has emerged and gained wide appliance: Identical or similar content is offered to market across multiple platforms simultaneously. Furthermore, there is often only a basic idea or a character serving as a source that is marketed across various media and non-media ways leading to different forms of appearance. This phenomenon, described as transmedia storytelling (Jenkins 2006), indicates the unfolding of a story across multiple media platforms, so that each medium makes distinctive contributions to the user's process of understanding the content and, in doing so, to its understanding of the world.

The differentiation between technological and content-related convergence processes lacks some of its clearness and suitability in regard to the examination of adolescents' appropriation of the convergent media world. It is necessary to adopt the perspective of the adolescents. This implicates two points. Firstly, referring to technical convergence, it has to be asked which technical-convergent services or offerings do young people really use for which reasons and in which contexts? Secondly, and this is in my opinion more important, it has to be asked how adolescents appropriate the media (and their content) based on their personal media interests and preferences.

## The meaning of media convergence for adolescents

The project "Media Convergence Monitoring II" attempts to answer these questions, based on empirical results from quantitative and qualitative surveys and rooted in the convergence

surveys of the JFF[1]. The findings presented in this paper are based on data gathered in an online questionnaire, which was put online in spring 2007 on several german websites. More than 5000 adolescents aged 12 to19 participated in the survey.[2] The survey focused on patterns of media usage and acceptance of current convergent development amongst young people. The main part of the questionnaire concerned the patterns of media usage based on content-related access motivation – in particular media-related preferences – based on which young people turn towards the convergent media ensemble of today with its content-related and technical conjunctions. In addition, data was gathered in qualitative interviews with selected media-enthusiastic adolescents focusing on their appropriation processes. This will allow conclusions about the impact of growing convergence on socialisation processes and identity construction. First results will be available in September 2007.

**How adolescents use technical convergent developments**

Technically determined discriminations between different media forms are dissolving. The users themselves will increasingly appoint what they are doing, whether they are watching TV, playing games or searching for information when they are sitting in front of a single device (Hasebrink 2004). Questions about the usage of media (devices) have to be widened into questions about the kind of activities performed whilst using media (devices). For example, it is not sufficient to know how often and how long children or adolescents use personal computers, the internet or mobile phones, it is more important to know as precisely as possible what exactly they are doing. Within a quantitative survey only basic data can be gathered, however, this offers first results in this field and an overview about the acceptance of new convergent technical developments amongst adolescents.

Concerning the internet usage (regardless of communicative activities such as e-mailing and chatting) our findings show that searching for information, downloading written texts or images, watching video clips (e.g. on www.youtube.com) and playing games are the activities the interviewees carry out most frequently. Watching video clips is likewise the activity, they like best. With regard to the acceptance of new developments it should be noted that using pod-casts / vod-casts or watching web-TV is used by 20 % resp. 30% at least seldom and is in this way more common than downloading mobile content such as ringtones, graphics or mobile games. Nearly 85% have never done this. As expected it are the boys again, who tend to appropriate new developments like web-radio, pod-casting or web-TV.

With regard to offline activities on PCs it can be said that listening to MP3-music-files is by far the favourite and most frequent activity amongst the interviewees (more than 70% like it very much). Furthermore, many of the interviewees like to edit pictures (32%) and play computer games (30%) very much.

The mobile phone (again regardless of the genuine communicative activities) is frequently used for taking pictures and videos. Also playing games with the mobile phone and listen to music are common activities of the 12- to-19-year-olds. Web-content, however, is rarely accessed through mobile phones, not least because of the high costs that are often associated with.

[1] The JFF – Institute of Media Pedagogics in Research and Practice (Munich) has carried out three surveys in the field of adolescent's appropriation of media convergence, most in cooperation with the Department of Media Pedagogics and Further Education of the University of Leipzig. For further information see (Theunert & Wagner 2002; Wagner et al. 2004; Wagner & Theunert 2006).

[2] Because the data was gathered in an online questionnaire put online on different websites the sample is nonrepresentative of the german 12-to-19-year olds but represents the group of young early adopters. The sample consists a considerable higher quota of participants with higer education. Also the sex and the age is not uniformly distributed (sex: 64% male, 36% female; age: 10% 12-13-year-olds, 32% 14-15-year-olds, 41% 16-17-year-olds, 17 % 12-13-year-olds).

**How adolescents use content-related convergent offerings**

When looking at both the technical and the content-related developments of media convergence it has to be assumed that adolescents have the opportunity to deal with content (resp. preference) more extensively as well as more intensively. Four elements or ways, how this happens can be described: (1) the multiplication of the same content (e.g. release of cinema movie on DVD), (2) the offering of similar contents (e.g. movie and related computer game), (3) the access to background information about content or characters and other provided media activity opportunities (e.g. on websites, esp. websites belonging to magazines) and (4) the creation of personal content-related media products (e.g. creative adaptation of a movie) und its publication (e.g. on www.youtube.com) (cp. Theunert/Wagner 2007). Looking at convergence from the adolescent's perspective, the usage of both technical as well as content-related convergent media offerings is a matter of their everyday lifes. And, in doing so, the adolescent's usage of the convergent media world is not reduced to the pursuit of connections and references provided and determined by the market; they also construct their personal connections.

The first step in analyzing adolescents use and move through the convergent media world is to have a look on their preferences in the fields of computer games, movies, TV-programmes and music. In the period of adolescence, individual media preferences and favours are of high importance for boys and girls alike, particularly with regard to their relationships with friends and peers. Their preference for certain movies, music, TV-programmes or games (as fields of media they are interested in) guide their movement through the convergent media world and their media appropriation (cp. Theunert 2005).

Regarding the multiplication of the identical content, the results of our study show that music and movies are preferences, for which most of the interviewees make use of two or more devices to obtain them. For example a 15-year-old interviewee sees his favorite movie "Eiskalte Engel" ("Cruel Intentions" USA 1999) at the cinema, on TV, on DVD (with PC and DVD-Player) and online. In contrast to music and movie preferences, TV-programmes and especially computer games are usually obtained through only one single device by the majority of the interviewees in order to play their favourite game or to watch their favourite programme. These results correspond to the differences between the respective fields of media preferences, in terms of the range of offerings and opportunities. Music and movies are offered more commonly in different ways.

Regarding the use of similar contents (cross-media markted offerings) and the provision of further information and associated activities to appropriate their preferences, it can be observed that nearly everybody of the interviewees uses additional offerings. Again especially movies and music are preferences for which the interviewees use a lot of additional offerings. To complement their favourite music (e.g. "Tokio Hotel"), the interviewees use websites (64% of them), DVDs/video tapes (33%), TV-programmes (31%) and magazines (29%). To complement their favourite movies (e.g. "Star Wars"), they use particularly soundtracks (48%), websites (31%), books (20%) and games (18%). The most popular convergent complementary offerings to TV-programmes (e.g. "Grey's Anatomy") are websites (30% of the interviewees access them), followed by soundtracks (23%) and DVDs (17%). When looking at what adolescents use in addition to their favourite games, it is clear that these are particularly websites (40%) and by far movies, soundtracks and magazines (all approx. 15%). Against the background of these facts it has to be assumed that a considerable part of the interviewees 'read' their favourite 'stories' across multiple media platforms and across different forms of appearance. The internet is – in general – the most important media for dealing with favourite media content resp. preferences.

When taking a closer look at the kind of activities applied when girls and boys use the internet in context of preferences, it becomes evident that searching for information is the main activity followed by watching video clips and downloading files (e.g. music, video clips etc.). The content downloaded from websites depends on personal preferences. For example, in the context of games adolescents often download images, video clips and game accessories. Approximately a third of computer 'gamers' obtains these content from the web. Regarding music it is interesting to note that more than 40% of the adolescents who prefer music download lyrics or other written content, and – as a last example – those who prefer movies like to download images and soundtracks. Interestingly, high-level and partly creative activities like communication via blogs and forums and file upload are more popular in context of preferences than expected: Almost 30% of 'gamers', 20% of music-fans and more than 10% among those who are interested in movies or TV-programmes take actively part in online forums or web-logs that correspond to their individual media interests. Uploading pictures, videos, music or longer written texts is carried out by five to ten per cent of the interviewees depending on their personal fields of preferences. The download of mobile (phone) content such as graphics or ringtones plays in all cases an extremely marginal role.

**Prospects**

Which implications do these developments of convergence regarding to technics and content have on socialisation processes and the identity construction of young people? First results regarding to this question show that the convergent media world offers risks as well as chances for the adolescents (cp. Wagner & Theunert 2006). Risk particulary because of the potential of a (too) high involvement into the offered stories or contents and chances because of the possibilities to deal their interests and preferences in a personal and creative way. With regard to processes of identity construction the convergent media word – seen from the perspective of adolescent's – offers a wide range of activities that are relevant for identity construction such as identification, reflection and action in trial.

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# Modes of Beings in Mobile Telecommunication

By Miya Yoshida

The interventions of portable digital devices such as mobile telephones, mp3 players, PDAs, and many others, have been described as new factors in the formation of contemporary notions of space. Especially important for the perspective of this study is the notion that mobile telephony is said to enhance the complexity of subjective space – for example by its passive aural communication functions, questioning and relativizing existing spatial boundaries. The impact of these devices' mobility (informing the users' mobility) is sometimes paralleled to the shift brought about by the effects of still photography when they changed to those of moving images in the 19th century.

In fact, mobile phone studies and practices have been facing a rapid development in a rather short time. Together with the statistics of endlessly increasing diffusion rates of mobile telephones, the prefixed idea of connectivity and of ideology – "seamless connectivity," "ubiquity," and others – is frequently used in daily life, and it therefore does not take any great amount of discourse analysis to point to the ideological character of these constructions. Here, it is important to be conscious about what has and what has not really changed under the influence of wireless technology and portable gadgets. What has actually changed are the social institutions in public environments, implementing a variety of significant alterations in the relation of public and private space as well as introducing critical changes in the perception of and attention for the self as related to an external social reality. This implies not only a transcendence of spatial models, but also modal changes of our being-in-space, more precisely subjectification in a setting of mobile telephony.

However, significant problems of mobile telephony research lie in its deliberately expansive nature, and does not easily fit this kind of research into a single academic discourse, because of its character of essentially complicating spaces through the emphasis on connectivity and mobility. While mobile telephony research connects and engages in different, otherwise not coinciding terrains, categories within the academic field are becoming unstable, just as so-called new media brought variability, modularity, automation, and transformations of coding systems. This suggests a potential use of art works as an alternative form of knowledge to examine the current emerging phenomena. What sort of fundamental gaps lie between reality, visions and imaginaries? How do artists observe, process, and contradict the "dispositive" of mobile communication within their theories and practices?

Seeing some notions quite repetitively used, one cannot help but notice that contexts of some of these notions are easily changed, or even forgotten. One familiar example is the qualification of communication as "seamless" (seamless connectivity, interaction, integration), which is origin of "ubiquity". It should be briefly mentioned here that the notion of "seamlessness" had earlier been regarded as describing something undesirable and negative when Mark Weiser presented the idea – together with the set of notion of "seamfulness" within a universalizing system.[1] Yet the former notion has been more widely adopted, even though there are some phenomena inviting to reconsider the notion of

[1] Weiser, M., 'The Computer for the Twenty-First Centruy', pp.94-100 in Scientific America, September 1991, also found in URL: http://www.ubiq.com/hypertext/weiser/SciAmDraft3.html (consulted May 2007), and Weiser, M., 'The world is not a desktop', pp7-8 in Interactions, January 1994, also found in URL: http://www.ubiq.com/hypertext/weiser/ACMInteractions2.html (consulted May 2007)

"seamfulness", like with beautiful seam, good seamful design, etc.[2] Seamlessness as a structural metaphor is of course connected to imageries of weaving, networking, working in general, but in the context of mobile telephony it has served the obvious cause to convey a simplified picture of a complex hierarchy – one that is certainly more complex than a simple woven and sewn texture. This is even truer for the notion of subjectivity or "subjectivities" that are frequently used within communicative contexts. Discourse analytical approaches abound where there is mention of "new subjectivity/ies", "mobile subjectivity", "data subjectivity", "digital subjectivity" etc. There are different nuances and emphasis in each of these notions, but their specific meaning is not easy to grasp. How do we understand what happening around ourselves? Can it really be seen as the sign as emergence of "new subjectivity"? Instead of blindly following such an image, it seems advisable to rather start concretely rethinking these big frameworks in case of mobile telephony. In my paper, I attempt to examine through about a contemporary notion of "subjectivity/ies" in the context of mobile telephony – and about their metaphorical dimension, through one project in particular, called "Call Cutta Mobile Phone Theater", which I exhibited as part of "The Invisible Landscapes": a series of mobile phone art projects.[3]

## What is *Call Cutta Mobile Phone Theatre*?

*Call Cutta Mobile Phone Theatre* is a theater piece organized by the German/Swiss theatre collective "Rimini Protokoll" in 2005. It is an essentially mobile phone-based project, which provided personalized guided city tours via mobile telephone conversations in order to explore hidden memories, dimensions and layers in cities that had seemed familiar to the local participants. The project was divided into two parts – one in Calcutta, the other in Berlin. In the first part in Calcutta, the project was a remote-guided city tour for local people, which were navigated by the voice from the call centre. The call agents operated as guides and actors at the same time, and from point to point navigated the audience through city streets, making them "discover" details, entering into a more and more personal dialogue, talking about their own memories, and letting the guiding persons fulfill little tasks.

The second part of the project happened connecting Calcutta to the "other side of the world", Berlin. The navigator was still at the same call center in Calcutta, participating in the project there during nighttime in Calcutta, and during daytime in Berlin. The audience in Berlin was guided through many surprising sites in their "own" city by a voice with an Indian accent. Sounding bizarre in the second part, however, actually, the Berlin version grew to become a more intimate conversation between two people who were far remote from each other and connected only through telephone. Rimini Protokoll commentsthat

> "At the beginning, they (participants) will feel somehow like being caught by a service line, because there is a service line at the other end. As time goes by, they (participants) start to trust the person on the other side of the phone, the voice becomes very human, and then you realize that this human voice is also lying on the phone, flirting with you on the phone." [4]

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[2] MacColl, I. et al., 'Seamful ubiquity: Beyond seamless integration' in Equator, 2002, URL: http://www.dcs.gla.ac.uk/~matthew/papers/ubicomp2002workshop.pdf. (consulted March 2007) Greenfield, A., *Everyware – The dawning age of ubiquitous computing* -. Berkeley: AIGA, 2006.

[3] The Invisible Landscapes is a series of mobile phone art projects which I curated. It started in Malmö Konstmusem and Rooseum Center for Contemporary art, Malmö, Sweden, in 2003. It was further developed at the Gallery of Chulalongkorn University, Bangkok, 2005, and Lund Konsthall in Lund, Sweden, in 2006. For further details, please consult URL: www.invisible-landscapes.net

[4] These comments are transcribed from a documentary film "Call Cutta", directed by Anjun Dutta, 2005.

Rimini Protokoll juxtaposed two distant cities, Berlin and Calcutta, by means of mobile telephony. This unexpected combination and absurdity –being guided through Berlin by a person on the other side of the globe, who probably has never been to a city – opened up a new approach to think mobile connections. For example, *Call Cutta* re-inserts a thinking of politics by reflecting a banal daily communication through the mobile telephone – without idealizing theoretical assumptions of political thought. By directing a lot of attention to the call centre industry in Infinity Tower, Salt Lake in Calcutta, it indicates interrelations between industry and globalisation at the "personal" level of one mobile phone call- how new communication technologies today penetrate dynamic transnational economies, how a global network system functions in unexpected ways and reaches into the existence of another human being on the other side of the world. What kind of reality has been left out in a process of development of theories and context in wireless portable technology?

**Assembling/Shuffling Subjectivities**

During the "performance" of *Call Cutta*, call agents play multiple roles that are based on a script and, depending on individual necessity, on spontaneous improvisation. The agent starts out in the role of an official instructor, but soon moves on through that of a more friendly "tour guide". As the conversation gets more personal and reversals of the questioning position are allowed, the mobile communication creates the feeling that there are two subjects who share a remotely similar vision, almost as if their respective partner is just beside one. Shifting to be a guide, a romantic storyteller, a practical adviser, director, performer, a personal friend, actor and exotic the Other. Helgard Haug, a member of Rimini Protokoll describes that "voices sensitively reflect psychological changes, negotiating modes and spaces of communication."[5] Using different modes of subjectivity, the agent makes the participants to feel secure, not being left alone, guided into a comfortable zone, and established a closer bond. The illusionary impression that is produced by the performance of different selves may give access to intimate territory where two subjects start to interact on a very personal level. Conversing about one's personal life – even if in a mode of pretending a fake personality – functions as a catalyst of communication, more than any purely rational exchange of information.

On taking a cautious look at the documentary, the procedure at work in *Call Cutta* is articulating a persona through the negotiations between a call center agent and a participant in which personal memories are shared and rearranged in relation to a specific site that is addressed in the mobile phone conversation. The bilateral dialogue recreated the other's persona, actually constitute by invisible subjects. They are articulating themselves through the mutual creation of a fictional persona about which they negotiate their relation in a very concrete way via a personally connected voice. In a sense, call agents represent how constitutive elements of subjectivities are copied, assembled, shuffled, (re-)created as subjectivities. In other words, they "download" increasingly fragments of fictional subject and "intimate" information, serving as a default persona that can be reacted to and juxtaposing different subjectivities as one's own. Then, their updated articulated subjectivity can be "uploaded" again, that is, a process that becomes a recursive form of subjectification.

In the specific context here, Call Cutta can be examined as model for different modes of subjectivities that developed in the use of mobile telecommunication, different ways of understanding the construction of the self. It changes the way we think and the way we form communications as well as the concept of subjectivity, itself. But in reality, with these subjectivities, the gap between a banal, individual communication act and the globalized market in a setting of the digital mobile network is filled. Pointing out such contemporary

[5] Ibid.

instable subject positions in the dispersed social fields and in the identity politics of late capitalism, the art historian David Joselit has referred to Ernesto Laclau and Chantal Mouffe[6] and has argued: "It (identity politics) is lateral in that it arises from a different economy of coexisting subject positions rather than emerging from an essential human depth".[7]
He designated such a shift – from a model of subjectivity that is founded in interiority, to one in which the self is constituted through a play of surfaces – calling it a condition of "psychological flatness" echoing what Fredric Jameson described as the "emergence of a new kind of flatness or depthlessness, a new kind of superficiality in the most literal sense."[8]
Keeping in mind that the juxtaposition of "types" of subjectivities can only be a metaphorical equivalence, is it such a form of unfulfilled, and never fulfillable subjectivity (since differentiation is its almost only "purpose") that can be observed in Call Cutta, or in attitudes towards customizing communication and personal representation through personalized ring tones in mobile telephones?

Considering the juxtaposed subjects in Call Cutta, such an attitude of modifying subjectivities can be seen both in the call agents and in participants, which interacts and reflects the ones of the agents. But we should not forget that these subjectivities are also relational to a hidden layer of subjectivity of initiator's behind the whole scene, who scripted and created a whole setting, that is based on the infrastructure in global capitalism. Accordingly, it is crucial to consider relations in economy and contemporary subjectivity/ies.

## "Immaterial Labour" in Post-Fordist Capitalism

Examining *Call Cutta* from a different angle, it can be obviously recognized that communication itself has become a significant form of labour, as well as the important processes in the realization of project. This circumstance raises more questions than answers about the relationships between labor and economic value in the spectacular phase of the capitalist system. Referring to such a transformation of form of labour, thinkers from Italian Operaist Movements, for example, Maurizio Lazzarato already lightened up the notion of "immaterial labour"[9] in the late 90's, and states the capitalistic value of subjectivity. According to him, "capitalism changes value and sensitivity" and "the management mandate to 'become subjects of communication' threatens to be eve more totalitarian than the earlier rigid division between mental and manual labour (ideas and execution/ mind and body), because capitalism seeks to involve even the worker's personality and subjectivity within the production of value."[10] His statement (that, by talking a "struggle against work" refers back to notions of work and labour developed in the context of the Operaist Movement) can underline the importance of mobile phone studies, not understood as an unitary approach from on field of knowledge and inquiry, but from a much more general, philosophical one.

Looking at *Call Cutta* again, it uses a naïve fascination at its functional root – the capacity of being able to communicate in a surrogate intimacy even with a total stranger on the other side of the world. Actually this may be the most controversial point of the project in a sense of "immaterial labour". In *Call Cutta*, communication is treated as equivalent to working with structures and contents with different criteria, which are consumable by new communications technologies. There, mobile telecommunication consumes not only

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[6] Laclau, E. and Mouffe, C., Hegemony and Socialist Strategy: Towards a Radical Democratic Politics. London/New York: Verso, 1985. P.110-111.

[7] Joselit, D., 'Notes on Surface :Toward a Genealogy of Flatness', pp. in *Art History* 23(1) March 2000, p. 31-32

[8] Jameson, F., Postmodernism: Or the Cultural Logic of Late Capitalism. London/New York: Verso, (1991), p.5

[9] Lazzarato, M., Immaterial Labour', pp.133-147 in M. Hardt and P. Virno (eds) Radical Thought in Italy: A Potential Politics. Minneapolis. University of Minnesota. 1997.

[10] Ibid.

information, but also ("Indian" operator's) subjectivities, which enrich and valorize otherwise neutral information through their handling, copying and editing in their productive and reproductive labour in working class. Implicitly, it uses the figure of the call agent as a generic application of the subjectivity of the initiators, and it is commodifying the Indian operator's personal subjectivities enacted in addition or on top of their profession as call center information mediators working under exploitative labour conditions. Actually "hidden-city guide tour" can be realized (and did in many other projects[11]) with other technologies, such as Bluetooth, GPS, Wireless Internet with sensor and others. But *Call Cutta* used a call agent as "the application of subjectivity" instead of combining the different wireless technology, and in added, succeeded to insert another additional layer of subjectivity in a line of production.

Here, the process of realization, production and consumption are observed unseparatable, because the modernist distinctions of instrumental action and of communicative action do not function anymore in the realities of mobile communication. In the project, participants are probably even not conscious about the act of consumption: consuming without knowing what they consume, and becoming a part of an inseparable set of act in the late capitalism. What I described here may sound overly critical, but this criticism aims at further articulating contemporary modes of mobile telecommunication. Needless to say, mobile communication surely opens up positive options[12]as well, even in a double act of communicating and consuming. However in the case of *Call Cutta*, it is important to mention the different starting points of the audience members and of the call agents. For the participants, *Call Cutta* is a participatory project that they enter out of a private interest and in their leisure time, while for the agents, it is a "job" by which they support their lives.

As well as Lazzarato, Paul Virno argued for a predominance of linguistic power in post-Fordist labour, [13] and Tiziana Terranova has discussed the mutation of labour from perspectives of the networking society. [14] Both commonly put emphasis on the form of postindustrial productivity lying in subjectivity. But, when "subjectivity" is mentioned as an "economic value" or "production" in the discussion on immaterial labour, there is frequently a certain emphasis on a quite specific (artistic/creative) subjectivity, one meant to stand for the "production of knowledge" or the production of cultural content with the current capitalist interest in knowledge industry. But we should not forget the phenomena that radical changes have emerged not only concerning notions and definitions of labour, but also concerning concepts of subjectivities. Seeing in *Call Cutta*, This exceeded the conditions, which are neither due to an "informational/cultural content" or "skill", but "humanizing" labour in working class, that is, more like subjectivity in general. Here the relationship of subjectivity

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[11] There are a numbers of mobile phone projects that were situated in city spaces in order to facilitate the experience of a mixture of real and virtual components, combining the use of different media – public telephones, internet/webcames, and mobile phone with GPS technology, Blue Tooth. For instance, *Ima Hima* (Prix Ars Electronica, 1999) by Neeraj Jhanji, was a "located" information service, indicating friends nearby, the nearest restaurants and shops or the exact address of the spot where the mobile phone carrier stands. Some other uses of locative media projects are a Bluetooth tour in Mölndal, Sweden (2002), *Can you see me now?* (Prix Ars Electronica, 2003) and *Uncle Roy All Around You* (2004) and *I Like Frank* (2005) by Blast Theory and others.

[12] As one of the positive examples, Rotkirch researched that, as a collateral effect of the globalised movement of labour, mobile phones contribute to making it possible for migrants to maintain distant relationships with their homes. It has also helped them to establish and to develop a network within their own social circle under aggravated language and living conditions. There exist other similar cases that the device helped to grow a network within specific groups of people. Rotkirch, A., 'The Internationalisation of Intimacy: A study of a chain of care', Paper presented at the 5th Conference of the European Sociological Association, Helsinki, 2001.
URL: http://www.valt.helsinki.fi/staff/rotkirch/ESA%20paper.htm (consulted May 2006)

[13] Virno, P., 'Labour and Language', Generation-Online, 2000,
URL: http://www.generation-online.ort/t/labourlanguage.html. (consulted June 2007).

[14] Terranova, T., *Network Culture: Politics for the Information Age*. London: Pluto Press, 2004. p.80-97.

can be seen as a part of economic system and a processing configuration of self-articulation, ultimately subject formation today locates in an economic system as well.

The complexity within the project does not remain only within the group of call agents, but also extends to the audience, as well.

> 'Who was the real protagonist of this play? It seemed that the way when we began as he urged me to see his world. Instead, I landed up performing, partly for others and partly for myself… Without technology this play wouldn't have been possible. Yet it talked about the scary world of call centres swallowing our youth and locking them in the dungeon of their stomachs. If theatre is about live interaction between, at least, two people, In this case there was a mobile phone, voices, strangers and I. Did I act? Then, what was *Call Cutta*? Was it really theatre?"[15]

This is another quote from the audience of *Call Cutta*, and made me think that commodification and consumption is not only subjectivity of call agents, but also the one of participants, who supposed to be a consumer. Were they also a part of production? Were they a constitutive unit of commodification of subjectivity/ies?

Rimini Protokoll's intention was to invent a cultural use for those economic structure and infrastructures exploited by global capitalism. Cynically speaking, *Call Cutta* eventually introduced a concrete model to capitalize and to exploit new layers of subjectivities in a mobile telephony setting, which, again, may serve as a model of communication services for the communication industry of the near future. Simultaneously, this really confronts us the fact that cultural activities also involve the exploitation of subjectivities. It is difficult to produce an autonomus product without being capitalized. Today, "the condition for economic production, artistic creation and political action have been entered into a zone of indifference where they appear linked through a senses of reciprocal presuppositions."[16] Once you liberate something -identity, race, sexuality, class…etc.-, it immediately and easily becomes a model for a market, instead of remaining a power of criticism. Here it can be seen that multiple subjecitivties, which has become commodified as production, despair a space of criticism by its ephemeral standing positions, that is strongly coinciding with the logic of capitalism. Capitalistic industry frequently adapts ideas, concepts and visuals from cultural practices, however the other way around seems to be uneasy.

The phenomena here described, performed and enacted in the context of mobile telephony, arguably form a different configuration in processes of self-articulation, and ultimately subject formation, that invites mutation of subjectivity. However, the transformation coexists with ambivalent positions of creative act, and these two are more precisely linked through mobile connectivity. Networks only connect subjects. Behind these subjects, there are the accumulations of past and present politics and economics. This makes it all the more crucial to consider relational aspects of identity politics and history in subjectification in mobile communication. [17]

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[15] Wahi, R., 'Was it theater?' 2005, URL: http://www.chillibreeze.com/articles/WasitTheatre.asp#a (consulted June 2007)

[16] Lazzarato, M., 'What possibilities presently exist in the public sphere?', Generation-Online, 2005. URL:http://www.generation-online.org/p/fplazzarato4.html (consulted June 2007)

[17] At the end of the fifty minutes of the mobile phone-guided tour, the two subjects are emancipated from invisibility by way of a mutual webcam, effecting what might be seen as a typical residue of theatrical modes of representation. The visual representation of the two conversation partners were revealed – to the Calcutta resident in her usual working environment, to the Berlin resident on a monitor in the storefront window of a computer shop, inside a shopping mall – the final point on the tour. The project experimented with an emphasis on temporary, ambulant forms of network existence (at least for the guided person), as well as on the power of voice, which connected the two subjects over a distance of 15,000 miles. However, this ending still and most of all confirms the significance of the materiality of communication.

**Mobile telephone connectivity**

*Call Cutta* showed us the fact that mobile telephone connectivity can create a space where an interaction of " human power, knowledge/information and action" can be easily realized. As the result, the interaction inserts a new stratification of reality around those in mobile communication. Simultaneously, the space implies conditions in which multiple and experimental subjectivities can live and play in high mutual dependency and in live sharing. Here, rethinking subjectivity as a consumerist mode of productivity, "subjectivity" as used today may at first give one the impression that it is inextricably linked to an activity of nurturing the economic system. Under the line of this thought, it can be said that a space created by mobile telephony tends to materialize all the involved subjectivity/ies as commodity. There is no clear line between a symbolic capital and economic capital. Individual subjectivities are not only the content of cultures anymore, but also transformed economical production, which, my hypothesis is that, eventually feeds back subjectivities that have been exhausted and emptied out by capitalism. This process can be reversed into a cycle of production: the economy feeds subjectivities in the modes of mobile communication.

Thus, thinking about the mobile phone as much more than just a tool, but as the agent of different subjectification that are replaced by a mode of society, "psychological flatness" may seem very close to the model to describe phenomena around subjectivity in mobile phone setting. Together with a play of surfaces as self-representation around the device, This psychological attitude that treats subjects as valid object of social discourse can also be understood as an actual agency that disperses boundaries (or set boundaries differently) between the self and the other, and is constitutive of an actual reciprocity of the self in mobile telecommunication linked to ongoing social and economic transformations – a "flattening-out" of subjectivities to conform to a mode of existence that replaced by capitalist economies and geopolitics mostly organized in mobile network systems. This can be as pervasive to technologically enhanced mode of "being in spaces" produced through individual and collective uses of digital mobile communication.
(end)

## BIOGRAPHIES

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